Serfoji Rajah 1824

A

PRACTICAL ESSAY

ON

THE DISEASES

OF

THE VESSELS AND GLANDS

OF THE

ABSORBENT SYSTEM:

BEING THE

Substance of Observations

WHICH OBTAINED

THE PRIZE FOR 1812,

OFFERED

BY THE ROYAL COLLEGE OF SURGEONS,

IN

LONDON:

TO WHICH ARE ADDED

SURGICAL CASES, WITH PRACTICAL REMARKS.

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SURGEON, BURY, LANCASHIRE,

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TO

ROBERT WAGSTAFFE KILLER, Esq.

LATE SURGEON

TO THE

MANCHESTER INFIRMARY, DISPENSARY,

LUNATIC HOSPITAL AND

ASYLUM:

THE FOLLOWING PAGES ARE DEDICATED,

AS

A TOKEN OF RESPECT FOR HIS ABILITIES,

AND

OF GRATITUDE FOR HIS FRIENDSHIP,

BY HIS OBLIGED FRIEND,

AND AFFECTIONATE PUPIL,

THE AUTHOR.

BURY,
February, 8th 1814.

PREFACE.

THE action of the Absorbent System is so intimately connected with the operations of the animal frame, that an inquiry into every complaint attended with derangement in its functions, would include almost all those which come under the cognizance of the Surgeon. In the following Essay, I purposed to confine myself to those diseases, where the vessels or glands of the Absorbent System are primarily affected, and where the diseased action necessarily tends to disorganize their structure. This view of the subject, though apparently

simple, is with some difficulty defined, and has not been strictly adhered to.

Fungus Hæmatodes, Carcinoma, and some other species of Sarcoma, should by this rule have been included; and the history of diseases which affect the absorbent glands, may justly be considered defective by the omission: indeed, by leaving out the whole class of sarcomatous complaints, their pathology will be found very much limited, but this omission will not, I hope, be considered important, since Mr. Abernethy's excellent work is in the hands of every Surgeon.

Though the view which I have taken of the diseases of the Absorbent System be confined, I have frequently found it necessary to avail

myself of the researches of preceding writers, and to combine and include their observations with my own. For this liberty, no apology can, I conceive, be necessary; since the opportunities for individual observation must necessarily be circumscribed; and by looking at disease in one view only, our inferences would probably be incorrect, and certainly less useful.

In treating on Scrofula, as it affects the absorbent glands, I have taken great, but not, I hope, unwarrantable liberties, with the opinions of men who deservedly rank high in their profession. I have endeavoured to trace Scrofulous actions to a cause which is cognizable to our senses; but which, when acknowledged to exist, has been con-

sidered an effect only of the disease. I am aware that the arguments which appear to me conclusive, may be deemed unsatisfactory by others; but, as they lead to inquiry, they cannot, I think, do harm; and I am not without hope, that the practical tendency of my opinions, will justify me in submitting them to the candour of the public.

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PRACTICAL ESSAY

ON THE

DISEASES

OF THE

ABSORBENT SYSTEM.

CHAP. I.

ANATOMY OF THE ABSORBENT SYSTEM.

THE aliment which constitutes the food of man, after being masticated, is conveyed into the stomach, and converted into a bland, uniform, pulpy mass, which is called chyme. When this operation is completed, it passes into the intestines, where it is separated into two parts, one of which, closely resembles milk, and is called chyle; the other, which is excrementitious matter, passes through the alimentary canal, and is ejected from the body.

The chyle being fitted for the support of the system, is received from the inner surface of the intestines, and conveyed to the right side of the heart; and, having circulated through the lungs, is returned to the left ventricle; from whence, it is distributed to every part of the body. In this course it becomes more perfectly animalised, and is prepared for deposition by the extreme arterial branches; which have the power of changing its properties into substances, whose qualities and actions correspond with those of the part they are destined to supply.

The matter which is thus secreted constitutes a part of our fabric. It is endowed with, and regulated by the vital principle. This principle, however, does not exist in the same particles during the whole period of our existence; and when its influence ceases, they are re-dissolved, and re-conveyed into the circulation.

For this purpose, the body is every where furnished with a system of vessels, which absorb the fluids in which their orifices are

immersed. These vessels are composed of three coats: an internal, or cuticular coat; a middle, or muscular coat; and a cellular, or external connecting coat. After death they are generally empty, and as their coats are pellucid it is difficult to distinguish them; but by killing an animal which has been previously fed with madder, or into whose stomach, a solution of starch, indigo, or any other coloured liquor has been injected, they are rendered visible.[1]

They may be distinguished from the nerves, by their transparency; and from the blood vessels, by the colour of the fluids which they contain, by the irregularity of their course, by their joint-like structure, and by their termination in glands.[2] Their contents are conveyed from the circumference towards the centre of the system, and terminate in a common duct, which has much less capacity than the collective branches.

[1] Soemmerring de corporis human. fabrica Tom. V. Cruikshank's Anatomy of the Absorbent System, and Hunter's Medical Commentaries.

[2] Soemmerring loco citato.

Before physiologists were aware, that the solid parts of the body are constantly changing, it was believed, that the absorbents, like the veins, were only reflex continuations of the arteries, and that they received their contents directly from the latter vessels. [3] But the absorption of chyle from the intestines, of pus from the cavities of abscesses, and of water from the bags of the pleura, peritoneum, tunica-vaginalis-testis &c. is inexplicable, if they do not arise from surfaces; and if they arise from surfaces in these parts, it may be justly inferred that their origin is similar in others. This doctrine was first taught by Doctor Hunter, and is now generally received.

They are supplied with arteries, veins, nerves, and absorbents (vasa vasorum) from the contiguous cellular membrane, are uninfluenced by the will, and are not endowed with acute sensation.

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[3] Boerhaave. Method. Stud. Med. ab Hallero evulgat. p. 444. et in Institut. medic. § 246.

SECTION I.

Structure of the Absorbent Vessels:

THE internal coat of the absorbent vessels is smooth, polished, and like the inner coat of veins gives rise to a great number of *valvulæ plicæ*,[4] which are fixed in pairs to the sides of the vessel, in a half moon or parabolic shape.[5] The circular edge of the valves is attached to the sides of the vessel, the straight edge is loose, or floating, and corresponds with its diameter.[6] Towards the trunk of the system they are concave, and convex towards the extremities.[7] In consequence of this contrivance they admit the passage of fluids to the heart, and prevent their refluence in a contrary direction. They are more numerous than the valves of the veins, (three, four, or more being frequently found in the space of an inch,) and give to the vessel a

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4 Ruysch. Dilucid. valvul. vas lymph. et lacteis.
5 Soemmerring loco citato.
6 Cruikshank.
7 Winterbottom's Dissert. Inaugur. de vas. abs. P. 11. 8vo.

knotted appearance.[8] Doctor Monro thought with Haller, that their number was regulated by the contiguity of the vessel to arteries or muscles,[9] and that these by pressing upon, or giving a vibration to it, rendered valves unnecessary. But the observation must be proved to be correct before we admit his inference. Their distribution is in fact very much varied in different bodies. In some the thoracic duct is crowded with them, and in others it only contains three or four pairs. The same irregularity exists in every part of their course.

Their valves are able to bear a much higher column of mercury than the valves of the veins. They are stronger in the extremities than in the different cavities, and are most easily ruptured in the thoracic duct.[10] A valve is uniformly found at the junction of the branches with the thoracic duct, and at its termination in the subclavian vein.

Some anatomical teachers believe that the

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[8] Soemmerring loco citato.
[9] Monro De venis lymphaticis valvuloris &c. p. 37 & 39.
[10] Cooper, in Medical Records and Researches, for 1798.

absorbent vessels consist only of one proper coat, through which the lymph flows, like fluids through capillary tubes. Nuck, Cruikshank, and Sheldon have indeed demonstrated the existence of fibres in the thoracic duct of a horse, and have consequently inferred that they exist in the branches. But their existence is no proof that they possess muscular power, for tendons, ligaments &c. are fibrous, yet, they are not muscular.

We have evidence that muscular action is not necessary to counteract the laws of gravitation in organic structure. It is well known that the sap of vegetables rises many times higher than the height of man, and moves, though unsupported by valves, with a force more than equal to the pressure of forty-three perpendicular feet of water:—in the cut end of a vine, it supported, in the bleeding season, a column of thirty-eight inches of mercury. [11]

Their valvular structure, their small supply of oxygenated blood, their dissimilarity to other

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[11] Hale's Vegetable Statics, vol. 1. p. 114.

muscles, and the continuance of their action after death, furnish additional evidence against this opinion. Like the veins too, they become varicose, a fact which appears irreconcilable with muscular action. Neither does it appear that their action can be explained, if their muscularity be granted; for the contractile power of arteries increases as their diameter diminishes; and if the absorbents observe this law, how is chyle or lymph admitted into them?

However plausible these arguments may appear, they are too confined to be accurate. A considerable supply of red blood, and a fasciculated structure, are necessary to enable the muscles of the higher classes of animals to perform the various offices which are allotted them.[12] But as the functions are less complicated, we find this structure less evident, until the fasciculi disappear, and fibres can only be distinguished by the assistance of glasses which

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[12] Home's Croonian Lecture in Philosophical Transactions for 1795.

possess great magnifying powers.[13] This is the case in the *tænia hydatigenia*, yet its alternate contractions and relaxations were rendered evident by warm water only, and exactly resembled the actions of more perfect animals.[14]

A very astonishing contractile power resides also in the gelatinous parenchyma of the zoophites, and animals which inhabit corals; in whose structure nothing like muscular fibres can be distinguished.[15]

The red colour of muscles depends on the quantity of oxygenated blood which they receive from the heart, but their irritability is not in the same proportion; for the muscles of frogs, turtles, and serpents, are more irritable, and retain their irritability longer after death, than the more oxygenated muscles of warm blooded animals. That colour is a most uncertain guide in the physiology of muscles, is further proved by those of the caterpillar, which are of a bluish grey, and

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[13] Home's Croonian Lecture in Philosophical Transactions for 1795.

[14] Ibid.

[15] Blumenbach's Comparative Anatomy by Lawrence, p. 393.

transparent like jelly.[16] The same colour is found in the muscles of most insects.[17]

Since, then, muscular action exists under such varieties of external character; it becomes necessary to inquire into, and to be governed by the powers which the absorbents possess, rather than by their structure. If their contraction, on the application of external stimuli, be admitted as a proof, their muscular power has been long demonstrated: Haller produced it by the application of sulphuric acid to the absorbents of the liver; and saw them propel their contents with celerity, on the admission of cold air into the abdominal cavity.[18] They possess this power in all red blooded animals, and it not only exists from birth, but is so tenaciously retained that it is not immediately destroyed by death.[19] They contract too with considerable force, for they

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16 Lyonet Trait. Anat. de la Chenille. p. 92.

17 Blumenbach's Comparative Anatomy by Lawrence, p. 392.

18 See Cruikshank's Anatomy of the Absorbent System, and Soemmerring de corp. human. fabrica Tom. V.

19 Cruikshank's Anatomy, &c.

have been frequently ruptured by their own action,[20] and though they are dilated and form varices, it most probably arises from paralysis of the muscular, or rupture of a small portion of their internal coat.[21]

The fibres which compose the muscular, or middle coat of absorbent vessels, are thin, transparent, and not readily separated from the inner coat, to which they are attached by the common cellular membrane. They are best demonstrated by inverting an absorbent vessel over a glass tube, which is somewhat larger than itself; the internal coat is thereby ruptured and shews the muscular structure. Mr. Cruikshank, who pursued this method has delineated the muscular fibres of the thoracic duct of a horse. Some of these fibres are

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[20] Cooper in Medical Records and Researches for 1798.

[21] It is proper to observe, that though muscular power, cannot with propriety, be assigned to the vessels through which the sap of vegetables circulates, neither can their function be accounted for by capillary attraction, since that fluid ceases to circulate in the dead fibre. In both animal and vegetable life, "the beginning of absorp-"tion, may, or may not resemble the attraction of capillary "vessels in dead matter, but the power of propelling the "fluids depends on the living power of the vessels."

circular, others are spiral, and the course of many is irregular and ill-defined. [22]

The external coat serves only to connect the vessel to the surrounding parts, and is composed of the common cellular membrane. In anasarca the water pervades this as well as every other part of that membrane, and by separating the vessel from its connections renders it more visible. The cellular coat is perforated by the blood vessels and nerves which ramify upon the muscular and internal coats.

Section. II.

Course of the Absorbent Vessels.

The superficial absorbent vessels of the lower extremity, rise from the whole surface of the toes and foot, and ascend towards the knee. Those from the inner surface of the foot, pass

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[22] Cruikshank's Anatomy of the Absorbent System, 2nd. edition, plate 4.

"The second coat, I apprehend, consists chiefly of muscular fibres, running in every possible direction; the greater number take the circular direction, and surround the internal membrane." *Sheldon's Anatomy of the Absorbent System.* p. 6.

behind the inner ancle, anastomose with others which pass anterior to it, and are spread out on the inside of the calf of the leg. They accompany the saphena major vein along the thigh, anastomose very freely, and form twelve or fourteen trunks which terminate in the inguinal glands.[1]

The deep seated vessels have their origin on each side the toes. Part of them accompany the anterior tibial artery, but the greater number follow the course of the plantar and posterior tibial arteries to the ham, there they are joined by the anterior tibial absorbents, and by those superficial vessels which arise on the outside of the foot, and which accompany the lesser saphena vein. Emerging in two considerable branches, they accompany the femoral artery, and pass with it under Ponpart's ligament.

Being joined by the internal iliac absorbents, and by those from the posterior part of the thigh, penis, scrotum, and from the parietes of the abdomen, they form a considerable plexus,

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[1] Cruikshank's Anatomy, p. 149.

and accompany the iliac artery to the vertebræ of the loins. On ascending the anterior surface of the bodies of the vertebræ, they approach the corresponding vessels from the other extremity, and the other side of the pelvis, and by their union, form the commencement of the thoracic duct under the left crus of the diaphragm.[2] The thoracic duct is dilated at its commencement into a pyriform pouch, or bag, which in some animals is considerable, and is called the receptaculum chyli; because, the absorbent vessels which convey the chyle from the intestines terminate in it.

The intestinal absorbents have usually been called lacteals from the colour of their contents, but they not only carry the nutritive matter which is furnished by the food, but the serous fluids which have been exhaled into, and lubricate the abdominal cavity. They arise from the villi of the small intestines by open mouths. Their radicles are too minute to be discovered by the eye, but from fifteen to twenty

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[2] Cruikshank's Anatomy, p. 167.

have been counted on one villus;[3] which unite, and form a single vessel.

They are divided into a deep seated, and a superficial set; the former are covered by the muscular coat of the intestines, and accompany the arteries and veins, every blood vessel having its attendant absorbent; the latter run immediately under the peritoneum, and almost always longitudinally.[4] They decrease in number, and increase in size, as they converge towards the root of the mesentery, where, they ultimately form, one, two, or three trunks. In this course they anastomose with each other, and with the absorbents from the liver, and diaphragm.

From the crus of the diaphragm, the thoracic duct passes under the aorta to the right side of that vessel, and after it has entered the thorax, through the aortic orifice of the diaphragm, runs between it and the vena azygos. It is bound down to the spine, and follows its

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[3] Cruikshank's Anatomy, p. 59.
[4] Ibid. p. 147.

incurvations. In the upper part of the thorax it is again found on the left side of the vertebral column. It passes under the arch of the aorta, behind the inferior thyroid artery, and upon the longus colli muscule, where it forms a considerable curve, and descends to its termination in the angle between the left subclavian and left jugular veins. In this course its size is exceedingly various; it often divides into two or more branches, which unite, subdivide, and unite again. This is more particularly observed, where it receives the contents of the absorbents from the left superior extremity, and of the numerous branches which accompany the left jugular veins.

The absorbents of the kidney, liver, stomach, spleen, pancreas, and of the heart and left lungs pour their lymph into it. The vessels from the left lobe of the liver, and the left side of the diaphragm take their course along the anterior mediastinum. In consequence of their anastomosis with the intestinal absorbents, they are frequently filled with chyle.

Another trunk of the absorbents enters the right jugular and subclavian veins. It receives the lymph from the right superior extremity, the right side of the head, neck, heart, liver, the right lobe of the lungs, and the right side of the diaphragm.[5]

Section III.

Structure of the Absorbent Glands.

"Between the extremities of the absorbent vessels and their trunks, numerous small glandular bodies are interposed," which serve as receptacles for their contents. They are round, or oval in the human subject, and sometimes flattened on their anterior and posterior surfaces like an almond. In the extremities, and on the surface of the body, they are stronger than within the thorax or abdomen, and will bear a larger column of mercury without bursting.

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[5] Hewson.

They are of various colours. On the mesentery, where they frequently amount to one hundred and twenty, or one hundred and fifty, and according to Ruysch to a greater number, they are sometimes distended with chyle, and appear perfectly white. In cases of jaundice, they become yellow near the liver, from the transmission of bile; whilst in the lungs they are of a dark blue or purple colour, and sometimes black. In the extremities of the young subject they are red, but become paler with age.[1] Their size also decreases with their colour, for as the exhalent vessels become less active, there is of course little lymph to be re-conveyed, and the glands must accommodate themselves to the diminution. Their great vascularity, irritability, and action, in young subjects, explain their peculiar tendency to disease at that period of life.

Ruysch, whose accurate anatomical knowledge, entitles his opinion to the greatest respect, believed, that the glands on the mesentery

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[1] Cruikshank's Anatomy, p. 72.

disappeared in the latter part of a long life. Haller and Dr. Hunter were also of this opinion, but its inaccuracy is now generally admitted. The vessels which arise from the surfaces of the body, and terminate in these glands are called vasa inferentia; those which emerge from the gland, and which arise from its surface, like the radii from each villus of the intestine,[2] are called vasa efferentia. The vas inferens divides into a considerable number of minute branches, before it dips into the gland. Ten, twelve, or fourteen have been counted entering a gland, from which not more than one vas efferens has arisen. Sometimes three, four, or even six emerge from it; but they are generally less numerous, though larger in size, than the vessels which entered its substance. The branches which pass towards the gland, but which do not enter its substance, form a plexus of vessels around it, anastomose with the vasa efferentia, and pass with them towards another set of glands, to which they become vasa inferentia. The

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2 Cruikshank.

vessels which arise from these second glands, terminate in the like manner in others, still nearer the trunk of their system. This, though a general law, has been more particularly observed on the mesentery, and constitutes, what authors have called, the first, second, and third order of vessels and glands.

The glands seldom exist alone, but are found in clusters, and are connected by the vessels. They are united together in quadrupeds, but when this is observed in the human body it is the consequence of disease. In the lower extremity, they are situated in the ham and groin, and are found along the iliac vessels, in the cavity of the pelvis, on the omentum, mesentery, vertebræ of the loins, on the inside of the sternum, in the flexure of the fore-arm, the axilla, beneath the pectoral muscles, under and below the clavicle, under the chin, and along the whole course of the jugular veins. There is sometimes a single gland about the middle of the tibia, and on the inside of the ulna.

The coat of the gland is smooth and polished. It is formed by the condensed cellular

membrane, and is pervaded by a fluid which is found principally in children. Haller calls it "succus proprius glandularum." It is of various colours, but most frequently white.[3] It contains globules like milk, and is no doubt a secretion from the neighbouring arteries, but its use is little understood.

The glands are so loosely connected to the surrounding parts, as to be moveable in every direction. They are plentifully furnished with blood vessels, and, when finely injected, are uniformly red. Messrs. Charles Bell,[4] Soemmerring,[5] and Richerand,[6] maintain, that the glands are formed by a convolution of vessels. This opinion has the support of many respectable physiologists; but Mr. Cruikshank has clearly demonstrated that they are cellular, and that their cells have transverse communications with each other. Malpighi, Nuck, and Haller had indeed [7] previously asserted the same thing; but their testimony was in

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[3] "Succum, glandulis conglobatis inesse album serosum lacte tenuiorem, in juniore animali potissimum conspicuum, id quidem certum est."

[4] Bell's Anatomy, vol. IV. p. 207.

[5] Soemmerring de Corp. Human. Fabric. Tom. V.

[6] Richerand's Physiology, p. 108.

[7] Cruikshank.

some degree contradictory, and their conclusions appear to have been drawn from imperfect premises. Mr. Abernethy has been very successful in his enquiries into the structure of these bodies. He "injected the glands of the groin and axilla of horses with wax, and afterwards destroyed the animal substance, by immersing them in muriatic acid. In some, it appeared in very small portions, and irregularly conjoined, which proves that it had been impelled into minute cells.[8] In others he found only one solid lump of wax, in which cases, it appeared sufficiently clear, that the glands were formed internally of one cavity, and were not, as is commonly the case, composed of many minute cells."[9]

Besides adducing other proofs, he mentions the following. "A red coloured waxen injection thrown into the mesenteric artery of a whale, collected in several separate heaps about the root of the mesentery; and soon increased to the size of an egg. A yellow

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[8] Philosophical Transactions for 1796.
[9] Ibid.

injection by the veins exhibited a like appearance; some of the lumps increased by this means to the size of an orange." "That the lymphatic glands, in most animals, are cellular," Mr. A. concludes, "will not be doubted; but that they are sometimes mere bags," he thinks, "equally probable."

In the whale, many of the vessels terminate by pouring their contents into the bag of the gland, whilst others pass through its substance: "So that it appears, that chyle passes two ways into the thoracic duct; one through those lacteals, which pour the chyle into bags; the other, by the plexus, on the inside of the bag, through which the lymph is conveyed to the thoracic duct, as imbibed by the intestines."

Section IV.

Physiology of the Absorbent Glands.

The use of these glands is very imperfectly understood. Mr. Abernethy has proved that they secrete a mucaginous liquor, but we

are entirely ignorant what changes this secretion produces in the contents of the gland. It is perhaps idle to indulge in hypothesis; but it appears probable, that this liquor acts upon the lymph, like the gastric juice upon the food. The uniform qualities and appearance of that fluid cannot be otherwise explained, for if they had no power of changing its properties, we should have bone, oil &c. floating in it. The importance of the glandular functions, may also be inferred, from the great care which nature has observed, in not allowing any absorbent vessel to enter the trunk of its system, without having passed through them.

Many other reasons might safely be urged which tend to establish this opinion. Milk, when injected into the veins of a dog, is immediately fatal;[1] whilst if absorbed from the intestines it is highly nutritious. The power of converting it into nutriment, or, at least, this striking difference in its effect, does not entirely depend on the action of the stomach,

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[1] Young on Opium. p. 6.

for it is at least innoxious, when injected into the rectum and absorbed from it.

It might also be assumed in support of this opinion, that the glands are most numerous, where this power would be most necessary, viz. on the mesentery. It is to be observed further, that they do not exist in the lower orders of animals, because life is more tenaciously retained, as the animal descends in the scale of existence, and the admission of extraneous matter is therefore less likely to destroy it. This is the case in the whole class of amphibiæ and fishes.[2]

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[2] Hewson's Experimental Inquiries.

CHAP. II.

THE CHEMICAL PROPERTIES OF CHYLE AND LYMPH.

THE small diameter of the absorbent vessels renders it difficult to obtain their contents in a sufficient quantity for chemical analysis. The chyle and lymph on exposure to the atmosphere, coagulate and separate, like the blood, into a crassamentum and a serous fluid. The degree of coagulation depends on the strength of the animal,[1] but becomes more perfect towards the thoracic duct.[2] In a case, which we shall hereafter have occasion to notice, the chyle had rather more of a chalky white colour than milk; it was sweet and pleasant to the taste and smell, and on standing, an oleaginous matter like cream swam upon its

[1] Hewson's Experimental Inquiries. Cruikshank's Anatomy of the Absorbent System.
[2] Vauquelin.

surface.[3] It contains globules, which are much smaller than those of the blood, and on these globules its colour appears to depend. It imparts its colouring matter to water, and coagulates in it.[4] Though perfectly white in the absorbent branches, it assumes a roseate hue towards its termination in the subclavian vein; and is more strongly marked by exposure to the air.[5] This alteration in its colour probably depends on the absorption of blood from the veins. It contains an alkaline muriate and white phosphate of iron.

If the crassamentum of the chyle be washed in water, it forms small white fibres, which have less strength, and elasticity, and a less fibrous texture, than the fibrine of the blood. It is more readily and completely soluble in caustic potash, and therefore nearly resembles albumen.[6] It is coagulated by alcohol, which likewise dissolves a fatty matter insoluble in

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[3] Philosophical Magazine, vol. ix.

[4] Monro on the Dropsy, p. 18.

[5] Diction. des Sciences Medicales &c. Art. Chyle by M. M. Dupuytren and Thenard, Emmert and Vauquelin. Also Edin. Med. and Surg. Journal, for July 1813.

[6] Ibid. vol. ix. p. 348.

alkalies; this matter is contained in the serum of the chyle, and in the brain.[7]

The serum of the chyle consists almost entirely of albumen and water. It restores the colour of turnsol reddened by acids, and contains therefore an uncombined alkali. The albumen may be precipitated by heat, alcohol, &c.

THE LYMPH may be considered as containing the worn-out particles of the body, and the serum which has been effused into the different cavities; but the relative proportions of its constituents are imperfectly understood. Dr. Monro has seen it flow from wounds where the absorbent vessels had been injured, but he paid no attention to its analysis.[8] In a case related by Mr. Patch, it appeared like scalded milk, and on being heated over a candle, soon turned to a soft curd.[9] This is so different from its common qualities, that it had probably undergone some alteration in the ulcerated part. Mr. Hewson asserts, that he has seen

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[7] Vauquelin.
[8] Edinburgh Medical Essays, vol. v. p. 327.
[9] Ibid. p. 330.

it coagulate on the edges of wounds.[10] When contained in the vessels, it resembles water in fluidity, is of a pale yellow, or sulphur colour, and does not, like the chyle, contain globular particles, for when viewed with a microscope it has the appearance of a homogeneous fluid.[11] It is coagulated by heat, acids, and alcohol. It turns the syrup of violets green; and is precipitated by calcareous and metallic salts. The coagulum resembles the fibrine of the blood, and is in perfect solution in the vessels.[12] To the taste it is bland and saline. When evaporated to dryness it resembles gum acacia, is pellucid as amber, and has saline crystals upon it.[13] If reduced to one half its original volume, it assumes, according to Soemmerring, a gelatinous appearance; but the lymph which he analyzed was taken from an absorbent in the leg, and probably was not so perfectly animalized as it

10 Experimental Inquiries, Part. II. p. 198.
11 Young's Introduction to Medical Literature.
12 Ibid.
13 Soemmerring de Corp. Human. Fabrica, Tom. V. p. 416.

would have been nearer the thoracic duct. It resists putrefaction,[14] but when this process takes place, it is rendered turbid, emits a cadaverous smell, and becomes puriform.[15] The power of resisting putrefaction is much increased by the powder of oxymuriate of mercury, and particularly by camphor. Lime water retards it longer than the powder of bark.[16]

The serous part of the lymph is of a pale yellow colour, is not capable of being coagulated, and contains sulphur and phosphate of lime.[17]

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14 Soemmerring de Corp. Human. Fabrica, Tom. V. p. 416.
15 Ibid.
16 Ibid.
17 Fourcroy Syst. des Conn. Chim. Tom. IX. p. 165.
The analysis of these fluids has not been sufficiently extended, to enable us to trace the changes which are produced in them by disease.

CHAP. III.

DISEASES OF THE ABSORBENT VESSELS.

SECTION I.

Inflammation of the Absorbent Vessels.

THE great irritability of this system of vessels, would lead us to infer that they are very susceptible of inflammation,[1] but it is a singular

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[1] Although it may not appear necessary, it cannot, I hope, be considered wholly irrelevant, to attempt in the present inquiry, a general explanation of inflammation. But previous to the consideration of a disease which is produced by arterial action, I beg leave to remind the reader, of those points in the structure of the heart and arteries, which direct their action in health, and appear to influence their diseases.

The arteries possess muscular power, by which they contract upon the blood, and elasticity, by which they are again dilated. The power of contracting increases as their diameters diminish; the elasticity decreases in the same ratio, until it is entirely lost in the minute branches, and they have no pulsation. For this observation we are indebted to the genius of Mr. Hunter.

The quantity of sensation is also very different in different parts of the sanguiferous system. In the muscular fibre of the heart, it is so obscure, that inflammation is not attended with pain, or only in a distant part; in the coats of the large blood-vessels too, it is, I conceive, by no means acute, and I ground this belief on the well known fact, that ulceration or rupture of their coats is attended with no uneasiness. The power of sensation in fact, is great only in the minute branches, as it is on their coats alone that the ramification of nerves is considerable.

feature in their history, that this affection has scarcely been observed internally; whilst few diseases come immediately under the cognizance of the surgeon, which do not occasionally

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As every part of the body receives a quantity of blood proportioned to its sensation, we may justly infer that the coats of the secerning vessels, are more highly organized than the heart and large arteries, and more immediately influenced by the nervous system. This, it may perhaps be argued, is rather asserted than demonstrated, but it will be sufficient for my purpose to shew that facts appear to authorize the opinion. A more trifling surprise will excite a blush, than is necessary to influence the action of the heart, or large arteries. The same properties, then, which direct their healthy action will also regulate their diseases. If we inquire into the phenomena which these present, we learn that the first act of inflammation consists in the transmission of a greater quantity of oxygenated blood to some part of the body, than it receives in health. This stimulates the vessels and nerves to greater action, and the increase of contraction is most visible in the smallest branches, for reasons which I have already endeavoured to point out.

This principle of contraction in the minute branches, appears to be not only the leading phenomenon of general inflammation, but draws the line of distinction between the different species of that disease. Where the power is great, there is greater resistance to the passage of blood through the part, and the redness and swelling remain on pressure being applied: as the power decreases, there is less tension, and a temporary pressure causes the redness to disappear by forcing the blood through the inflamed vessels. It may be traced therefore in regular gradation, from the most violent phlegmon, to erysipelas, and from the latter disease to petechial effusions, where the contractile power ceases, and death generally closes the scene.

I am aware that in Mr. Hunter's experiment on the ear of a rabbit, the arteries were larger than in the one which had not been inflamed; but granting all that this experiment appears to prove, it does not, I trust, affect the positions which I have advanced, since the increased calibre was evidently

produce it in the extremities, and in the external parts. A punctured or lacerated wound, the operation of bleeding, irritating ulcers, a schirrous tumour, or inflammation by whatever

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confined to the pulsating arteries. Indeed, if the secerning vessels were enlarged by inflammation, anatomists would find their injections returned by the veins, where this affection had existed, a supposition which will not, I think, be verified.

The greater quantity of red vessels in an inflamed part, is advanced as another proof of their increased size, but may very readily be explained from other causes; for the vessels of the conjunctiva for instance convey a colourless fluid, and their diameter therefore cannot be discovered except red blood be admitted into them, yet this admission depends entirely on the force which the neighbouring arteries exert upon that fluid.

When inflammation is produced on mucous membranes, the increased contraction is far from being a distinguishing symptom, because the vessels which secrete mucus, are not so minute as the common secerning arteries; but if the inflammatory action be very violent, the rule will be strictly applicable.

The want of secretion in inflammation and in fever, for which Dr. Cullen accounts, by a spasm of the extreme vessels,* and which is strongly insisted on by the late Dr. Currie† as the leading feature of the latter disease, appears much more simply explained by this view of the subject. What they supposed to be superadded by the *morbid cause* of inflammation and of fever, is strictly an effect of natural structure, and a necessary consequence of every increased arterial action.

As this power of contraction is the immediate effect of the principle of life, it is self-evident, that not only the *degree* of action, but its *duration*, will be regulated by that principle: and it has been justly observed that "where the vital principle abounds in greatest quantity and perfection, it is most loosely combined, and most easily destroyed." The emotion of joy, or of grief, will destroy life in man, whose

* Cullen's First Lines of the Practice of Physic.
† Currie's Medical Reports, vol. 1. first Edition.

means produced, are commonly exciting causes. The irritation produced by the action of morbific matter, may also be a means of bringing it into notice, but this is not so frequent

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organization is more perfect than that of any other animal, whilst if we descend, we find frogs, tortoises, &c. live a considerable time without either head, heart, or lungs, and revive after vital action has been almost suspended, during a whole winter. The fact, indeed, is too general to be disputed.

Not only different animals, but different parts of the same animal, are regulated by this law, and if, as I shall endeavour to shew, the rule be applicable to the arterial system, it will explain the total relaxation which takes place in the minute branches, whilst the heart and large vessels retain considerable contractile power.

Without this knowledge, it is difficult to conceive, why a part does not retain the properties which are annexed to it in health, in proportion to the degree in which it is organized, and to its power of acting. That the reverse of this proposition is observed in the circulating system, is shewn, almost by every disease which immediately influences it.

In syncope, the body is bedewed with a cold sweat, which can be explained only by the minute vessels losing their contractile power, yet the heart has not ceased to contract. The effusion of blood from the minute branches, in the sea-scurvy, and in cases of petechiæ without fever, can only be explained on the same principle, and affords additional confirmation of its truth.

Here, we have spoken only of those diseases which are attended with diminished action, but the same phenomena are attendant on the latter period of diseases where the action has been excessive. The hot stage of an intermittent fever is succeeded by profuse perspiration, and the fatal termination of fever is preceded by petechial effusions. Inflammation produces the formation of pus, or coagulable lymph is thrown out.

This observation would appear to illustrate the difference which exists in the fevers of different climates. In countries where the heat is oppressive, and the body is

an occurrence as Mr. Cruikshank would lead us to believe.

We often find the glands inflamed when, as far as they are cognizable to our senses, the

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constantly exposed to the action of a strong exciting power, an increase of arterial action will soon be followed by relaxation of the extreme vessels; hence continued fevers are almost unknown in such climates. In subjects who suffer from the jail fever also, there is early relaxation of, and extravasation from the extreme vessels, because confinement and poor diet have previously impaired their power.

But the muscular power of the extreme branches is so important, and the equilibrium which they serve to support is so necessary to the existence of life, that either a great excess, or a great privation of action is requisite to destroy it; for the degree of nervous influence is considerably diminished in the cold stage of fever, yet it is attended with proofs of this power. This, which Dr. Cullen called spasm of the extreme vessels, when considered as one effect of contagious matter, and when conjoined, as in his theory, with atony in the same part, appears a contradiction of terms, and is generally considered the weakest part of his doctrine. The opponents of this celebrated writer must admit, that he traced the operations of disease, with accuracy and success. His work will be a lasting record of this truth, but his warmest admirers must also confess, that his theories are often hypothetical and defective. He has attributed the effect of natural laws, to the agency of extraneous causes, and does not appear to me to have distinguished between the proper actions of the part, and those, if any, which are superadded by infection. I admit that the introduction of human effluvia into the system, *may* produce feverish actions, but I see no symptom which cannot be explained without such an admission.

Dr. Currie also insists on the specific debility, and the specific action in fever, with considerable force, and inquires why, if this be denied, is not the debility which attends fainting, followed by feverish action, as well as that which exists in the cold stage of a feverish paroxysm? To this

vessels entirely escape; and indeed, a very accurate observer has almost denied their susceptibility to this action.[2]

Inflammation of the absorbent vessels is known by the presence of red lines, perhaps a quarter of an inch in diameter, generally extending towards the trunk of the system, but sometimes also in a contrary direction.[3] It may be distinguished from inflammation of a cutaneous vein, by applying a ligature around the limb, by which the vein will become visible, and it can scarcely be mistaken for any other complaint. Considerable pain is experienced on its commencement, and on

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question it may be answered, that if the cessation of action in the cold stage of fever, become so complete, as to deprive the body of sensation, and the minute arterial branches of their power of contracting, not only the feverish action but life also would probably be destroyed; because such an effect would be gradually induced, and re-action would not immediately follow. But, if a quantity of blood be withdrawn from the system in the hot fit, and if fainting be thereby *suddenly* induced, the chain of action which constitutes the complaint, is often destroyed. It is surely inconsistent then, to expect, that the means which destroy fever in one case, should produce it in another.

I request the indulgence of my reader for this long digression; the inquiry might be carried through an extensive practical field, but I feel that it is here inapplicable..

[2] Abernethy's Surgical Works.
[3] Ibid.

examination, a cord-like feel is communicated to the fingers. This is produced by the extension of the disease to the cellular membrane in which the vessel is imbedded. The patient's countenance is expressive of anxiety, which is much increased if the inflammation have extended to the absorbent glands. The redness soon becomes perceptible, and is of a pinkish colour, as though a thin substance intervened between the inflamed part, and the eye of the observer. It becomes gradually deeper, but seldom possesses every character of phlegmon; more commonly, it approaches to erysipelas, and like the redness in that disease, it disappears by pressure. The hardness and cord-like feel increase, unless the skin become more closely adherent to the parts beneath. This adhesion generally terminates the inflammatory action, and as the redness disappears it leaves a purple, or black colour, in the part.

When the irritating cause is violent, or long continued, or when the habit has been previously reduced; instead of this general

adhesion, we have either a succession of small abscesses, or an effusion between the cutis and cuticle, and the cellular membrane which surrounds the vessel, is thrown off by successive sloughings.

When abscesses are formed, they are confined to the cellular membrane which is exterior to the vessel; or, if the vessel be involved in them, adhesion must generally take place, which obliterates its cavity, and prevents the discharge of its contents.

As the inflammatory action disappears, the swelling which is often conjoined with it, changes its characters, and becomes œdematous. This is occasioned by the debility which follows an increased action, the œdema is therefore, cæteris paribus, proportioned to the size and importance of the vessel whose action is thus temporarily suspended.

The late Mr. Trye of Gloucester,[4] and more lately, Dr. Ferriar of Manchester,[5] attribute the swelling which occurs in phlegma-

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[4] Essay on the Swelling of the Lower Extremities, &c.
[5] Medical Histories and Reflections.

tia dolens to an inflammatory action of the absorbent vessels; but it requires all the learning and ingenuity of these distinguished practitioners, to support this opinion, and to account for the diversity of symptoms in the two diseases.

In phlegmatia there is no redness on the skin, nor is the pain confined to the course of the absorbents; it generally occupies the whole limb, and the swelling only becomes œdematous at a very protracted period of the disease. I am by no means disposed to assert, that inflammation of these vessels is never observed in the swelling of the lower extremities of lying-in women, but when it does exist, it depends, I conceive, on their participation in the general inflammatory action, and is therefore, rather a consequence, than a cause of the disease.

SECTION II.

Treatment of Inflamed Absorbent Vessels.

In no instance should the practice of the surgeon be more strictly regulated by the

strength and age of the patient, and by the nature and extent of the exciting cause of disease; than in an inflammatory affection of these vessels.

In the most simple cases, where the complaint is produced by friction, or is combined only with inflammation in other parts; the application of a bread and water poultice, and the occasional exhibition of a purgative, will frequently remove the complaint. But when the patient is advanced in years, if the strength have been previously reduced, and the primary disease assume an erysipelatous appearance, the bowels should only be kept moderately open, and the strength of the patient supported.

But the inflammation, though considerable, may frequently dwindle into insignificance, when compared to the disease with which it is accompanied, and which gave rise to it. In irritating ulcers of long standing, particularly if combined with caries in the bones, the constitution, worn out by the constant irritation, will excite immediate attention, and must be supported by

a free exhibition of wine, and bark, and by nutritious food, however inconsistent such treatment may appear with inflammatory symptoms.

If from the situation of the disease and the characters of the primary ulcers, the inflammation is suspected to be the consequence of the absorption of venereal matter, the practitioner will be aware that local applications have little influence on its progress, and he will chiefly rely on a liberal exhibition of mercury.

When vesicles have formed within the cuticle, the serum which they contain should be discharged, and a common poultice applied upon the part, until the sloughs have separated.

If pus have been formed in the cellular membrane which surrounds the vessel, the inflammatory action in its coats often speedily subsides, the skin regains its natural colour, and a considerable time elapses before the process is completed by the ulceration of the integuments. The absorbent vessels which arise from the cavity of the abscess, may in such cases frequently be excited to remove the

contents; and friction with stimulating embrocations, pressure, or the electric shock, are used for this purpose with considerable success. But if these remedies be not speedily successful, I prefer puncturing the abscess with a lancet, applying afterwards a cold solution of the zinci sulphas, by which adhesion will take place, and the cavity of the abscess be obliterated. This practice will be more particularly successful, if the skin which covers the abscess be thin, if it have little thickening around its base, and appear flat upon the surface rather than inclined to point. On the contrary, where the inflammatory action continues after the abscess is formed, it requires only the application of a common poultice, and must be treated like other abscesses after ulceration has taken place.

Section III.

Varicose Absorbent Vessels.

Dilatation of the absorbent vessels so frequently occurs, that it may be considered

natural to them.[1] As in the veins, it may sometimes probably originate from debility of the coats of the vessel, and from rupture or disease in the valves; but it is often the effect of other diseases, as when the vessel is enveloped in the progress of tumours,[2] or when ossific matter is deposited in the absorbent glands. A ligature applied round the limb of a dropsical patient immediately after death, will also produce this appearance.[3]

A case is related by Soemmerring, in which the absorbent vessels of the lower extremity were varicose. It occurred in a woman who laboured under anchylosis of the knee, and was attended with œdema of the foot.[4]

The thoracic duct is not entirely exempt from this occurrence, though its extensive dilatation is by no means common. A remarkable instance is narrated, where it was nearly

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[1] Cruikshank's Anatomy of the Absorbent System, 2nd. Edition, p. 92.

[2] Soemmerring de Morb. Vas. Absorb. p. 43, and Trye's Essay on the swelling of the lower extremities, p. 42.

[3] Soemmerring loco citato.

[4] De Corp. Human. Fabrica, Tom. V. p. 416, and 420, et De Morb. Vas. Absorb. p. 44.

the size of the subclavian vein: the subject appeared to be about forty years of age, and there was neither obstruction in the heart, in the venous or pulmonary system, nor at the termination of the duct into the subclavian vein.[5] It was accompanied with a proportional enlargement in the deep seated absorbents of the extremities, and probably therefore was not the effect of disease.

The learned professor Soemmerring repeats from an anonymous author, that the size of the intestinal absorbents is proportioned to the temperament of the individual, and he adds, that they are regulated by the size of the body, being much smaller in dwarfs than in giants; what reliance can be placed on the accuracy of these opinions, I am unable to determine.

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[5] Cruikshank's Anat. &c. 2nd. Edit. p. 207, and plate v. and Baillie's Morb. Anat. p. 109, 3rd. Edit. 8vo.

The former author also found "two trunks of the absorbents in the lungs of an ordinary sized turtle, each of them as large in diameter as the cava superior in the human subject."

SECTION IV.

Treatment of Varicose Absorbent Vessels.

This affection so rarely comes under the cognizance of the surgeon, that it appears almost unnecessary to speak of its treatment.

When uncombined with other diseases, and when situated in a convenient part, a bandage may be applied to support the coats of the dilated vessel.

SECTION V.

Rupture of the Absorbent Vessels.

A rupture of the coats of the absorbent vessels, though a rare occurrence, may be occasioned by obstruction, or by their own action. The vessels within the cavities are most liable

to this accident, being weaker than those in the extremities.

In Mr. Astley Cooper's experiments[1] which were instituted to shew the effects of a sudden compression on the thoracic duct, rupture uniformly took place in the receptaculum chyli. This is easily accomplished, after an animal has been fed with milk, by a few moments' pressure on the venous extremity of the duct;[2] but when the obstruction to the passage of the chyle and lymph is gradually produced, the vessels accommodate themselves to the change of circumstances, and the anastomosing branches convey the fluid to the heart.[3]

When the orifice of the ruptured vessel remains open, its contents are effused into the adjoining cellular membrane, or into the adjacent cavity, and dropsy is thereby induced. Lower produced this effect by introducing his fingers between the ribs of a living dog, and rupturing the thoracic duct with his nail.

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[1] Medical Records and Researches, for 1798.
[2] Ibid.
[3] See Chap. on Obstruction of these Vessels.

The animal died after languishing a few days, and two pounds of chylous liquor were found in the right cavity of the thorax.[4]

Dr. C. Smith of New Brunswick has related a case of an abdominal dropsy, where chyle was discharged by tapping.[5] A similar instance is recorded by Dr. Percival which had occurred to Dr. Huxham;[6] but the most remarkable case of chylous dropsy which I have met with, is recorded by M. Poncy, jun. The patient, who was only nineteen years of age, died after having been tapped the twenty-second time; and the quantity of chylous liquor which was evacuated, amounted to two hundred and eighty nine french pints. At the commencement of the operation the fluid resembled milk, but towards the conclusion became more like cream, and remained upon the surface. During the first five days it continued unaltered, but a greasy substance, somewhat whiter than butter, afterwards appeared upon it.

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[4] Tractatus de Corde &c. Edit. tertio. p. 207.
[5] Philosophical Magazine, vol. ix. p. 16.
[6] Percival's Medical Essays, vol. ii. p. 171.

On opening the body, the surface of the intestines was covered by a quantity of white creamy filaments, which had a slender adhesion to the parts, and a somewhat fibrous texture. These "lacteous concretions" were most abundant at the lower part of the abdominal cavity, towards the centre of the mesentery, and in the hypogastrium and groins.

The stomach and intestines were inflated with wind, and adhered to the liver, spleen, pancreas, mesentery and epiploon; the latter membrane was so much dissolved that there was only a vestige of it remaining; the mesentery, on the contrary, was much enlarged, and the liver, which was deeply lodged under the diaphragm, was flattened, and extended in bulk, and was adherent to the spleen, stomach, pancreas, and diaphragm. The gall bladder was empty.

The iliac glands on both sides were enlarged, and contained a white thick matter, which resembled boiled cream. It was miscible with water, and formed with it a white liquor similar to that which had been discharged in the operations.

At the commencement of the jejunum, there was a membranous bag, which was filled with a milky white liquor; at the bottom of the bag, and in that part where the jejunum is fastened to the mesentery, was a round fistulous hole, through which a probe could be passed into the glandular part of the swelling. The tumour was very hard, and so large that it was with difficulty grasped with one hand. On dilating the opening, and following its direction, sinuses were discovered leading to both sides of the abdominal cavity. The mesentery appeared to have degenerated into a somewhat schirrous structure, and was built up by enlarged glands: similar ones were found in great numbers on the peritoneum, and the glands which accompany the thoracic duct, were also enlarged, and filled by a similar fluid.[7]

It is difficult if not impossible to distinguish the chylous from the serous dropsy,

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[7] Saviard's Surgery, p. 252,—255.

A case of chylous dropsy is related by Bassius. An orifice was discovered about the third or fourth vertebra, from

neither does it appear easy to assign in all cases, an adequate reason for the occurrence of the former disease. The appearances which were discovered in the very interesting case just transcribed, would lead us to believe that obstruction in the glands, or the pressure occasioned by their enlargement, was followed by dilatation of the vessels; and when the disease became more extensive, and the pressure or obstruction more general, the rupture appears to have taken place. But this cause did not exist in the first cases which I have quoted, for the patients recovered, and no glandular enlargement was discovered; neither is this symptom mentioned in the cases which are quoted below from the French Academy of Sciences, in the former of which the disease was apparently produced by, or at least occurred soon after, too violent an effort to raise a burden.

It has already been observed that the absorbent vessels of the extremities are stronger

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which the chylous fluid flowed as from a fountain.

See also Memoires de l'Academie des Sciences à Paris, for 1700, and 1710.

than those within the abdomen, and are not so easily ruptured. The only case I know of upon record, in which this accident occurred, is related by Mr. Patch.[8] I shall take the liberty to transcribe it.

"A son of Samuel Wroth, of Crediton, in the "county of Devon, about eleven years of age, "and of a strong and healthy constitution, com-"plained to his mother, on the eighth of January, "that the linen in his breeches was very wet. "About two months after, the boy made the "same complaint;—when she examined him, "and soon found a liquid, like milk, constantly "issuing from a small imperceptible orifice near "his left groin, which continued three days, "and she believed that the whole discharge "in that time, was not less than two quarts "or five pints, which very much weakened "him. A flux of the same kind, and from "the same part, began again about six weeks "after, and wept, but not continually, for "near five weeks; from which the boy lost "his appetite, and was grown so weak that

[8] Edinburgh Medical Essays, vol. v. p. 330.

"he was scarcely able to walk. There being "only a little redness in the skin, about an "inch above the inguinal gland, as if there "had been a small pustule, without any pain, "tumour or inflammation, made me suspect "the truth of the report. Towards the end "of the month the boy came under my care. "Seeing the part perfectly sound, and the skin "of a natural colour, I did nothing for "him; but, in a few days after, three or "four spoonfuls of the discharge was brought "to me. I immediately sent for the boy, and "observed it to run from the small orifice "down his thigh pretty fast, but it was quite "stopped next morning, when I applied a "small piece of common caustic on the orifice "with proper bandage. After this application "there was never any milky discharge.

If an absorbent vessel were ruptured without any external wound, the lymph would be effused into the cellular membrane, and anasarca produced. It was probably the knowledge of this fact, which led the late Mr. White to assign this accident, as the proximate cause of a very

painful swelling to which lying-in women are subject, and which he has called phlegmatia-alba-dolens.[9] This very respectable practitioner believed that the rupture was occasioned by the pressure of the child's head, during the act of parturition, upon those absorbent vessels which pass over the brim of the pelvis. When the orifice made in the lymphatic healed, the diameter of the tube contracted, or perhaps entirely closed; the remaining vessels being unable to convey the usual quantity of lymph to the trunk of the system, a considerable distension and effusion must take place, and some time elapse ere the anastomosing branches could absorb the superabundant lymph.[10] In support of this opinion, Mr. White has given the outlines of a pelvis where the bone was as sharp as the edge of a paper folder, and has adduced the well known fact of rupture in the uterus. But granting all that this author advances, it does not satisfactorily account for the effects which he en-

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[9] White's Inquiry into the swelling of the lower extremities, &c. part I, and II.

[10] Ibid. p. 51. Part I.

deavours to assign to it; for the anastomosing branches are so extensive, that the obstruction must be indeed considerable to produce inconvenience; besides, there are many, and larger branches of these vessels tied in every operation for aneurism, than could be injured in parturition, yet no swelling is produced; the œdema on the contrary subsides almost immediately after the operation.

If the cause of ruptured uterus were the same as the cause of phlegmatia dolens, we might expect that the latter disease would occur at the same period with the former, or at least in the same patient, neither of which I believe have been observed. Again, we ought to expect it, after very difficult labours, whereas it is as frequently found after those which have been far otherwise. Neither are cases of rupture in the uterus, and of sharpened edge of the pubis, sufficiently common to account for the frequent occurrence of this disease.

Sometimes a perineal artery is ruptured, not by the pressure of the uterus against the bones of the pelvis, but from the distension of the part

by the head of the child, and as some absorbent vessels must also be ruptured, why does not phlegmatia dolens supervene?

These arguments are advanced on the supposition that Mr. White's opinion is correct, though he has by no means proved it. The improbability of such an accident is, I think, shewn, by the escape of the arteries and veins, though they have a much greater capacity than the absorbent vessels, are less capable of resistance, and are therefore more liable to injury.

It is almost unnecessary to mention, because the doctrine cannot require refutation, that Dr. Latham has attributed the swelling in rheumatism to rupture of the absorbent vessels.

SECTION VI.

Treatment of Ruptured Absorbent Vessels.

I am not able to point out any diagnostic symptoms which would lead the practitioner, with certainty, to foretell the existence

of a rupture in the absorbent vessels of the thorax or abdomen. But when on evacuating those cavities, there is reason to believe that this accident has taken place, it is of the utmost importance to prevent the re-accumulation of the fluid. A very small quantity of solid food should be exhibited, rest must be strictly enjoined, and small doses of opium frequently given, fluids by the mouth must be prohibited, and where the thirst is urgent the patient should be immersed in a luke-warm bath.

If the vessels be inconsiderable, and unconnected with organic disease, there is reason to hope for a favourable termination; but if the thoracic duct be injured, and if the injury be combined with disease of the glands the quantity of chyle or lymph which will escape from the former will be so great, that with the irritation of the latter disease, it will very probably destroy the patient.

Dr. Smith prescribed small doses of calomel,[1] but it appears to require very accurate

[1] Philosophical Magazine.

discrimination to administer it with advantage, for if the wound in the vessel be open, the calomel, by increasing the action of the absorbents, will cause a greater quantity of fluid to pass through the wound, and the extravasation will thereby be increased: but after the wound has healed, the exhibition of calomel will excite the vessels to remove the chyle or lymph which has been previously extravasated.

If the vessel be situated in the extremities, and connected with an ulcerated surface, it may either be secured by a ligature, or touched by the argentum nitratum, which stimulates it to contract, or produces a deposition of coagulable lymph, and obliterates the tube. After the eschar separates, there is seldom a recurrence of the stillicidium, and the wound heals, as in other parts.[2]

If the lymph be effused into the cellular membrane, a roller applied accurately round the limb, will prevent its increase, and a

[2] Patch in Edinburgh Medical Essays.

compress being placed under it, will produce adhesion between the sides of the vessel.

Section VII.

Wounds of the Absorbent Vessels.

Every accident which destroys the texture of the soft parts, must injure a number of absorbent vessels; but it is only where the vessel is considerable, and where, instead of its re-union, there is a constant flow of lymph from it, that it excites attention. This accident is liable to occur after bleeding in the arm or foot, and after the extirpation of tumours, of the absorbent glands, and other chirurgical operations.

Dr. Monro mentions two cases where a yellowish white fungus arose, from which such a quantity of lymph oozed, as made the dressing every day wet, and indeed became so considerable, that a spoonful could have

been collected in a very short time.[1] Hewson asserts that the fungus which Dr. Monro notices, consisted only of that portion of the lymph which had become coagulated on the surface.[2] But it is probable that the formation of this coagulum, will facilitate the healing of the wound, and that vessels may shoot into, and organize it.

Ruysch relates a case which occurred from opening a bubo, and though he does not notice the formation of a fungous substance, the exudation of lymph was striking, and gave a decided character to the case. "Ex horum rudiori cohorte nuper quidam Bubonem venereum aperuit ante perfectam maturitatem, (qua in re culpandus non erat, sic enim et nos facere solemus) simul autem importunâ dextrâ suâ vas lymphaticum dissecuit. Mirum dictu, quantum lymphæ singulis diebus e vulnere effluxerit; omnia linteamina continue madefiebant. Tandem, concilii expers, à me idem exquisivit,

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[1] Edinburgh Medical Essays, vol. v. p. 328.
[2] Hewson's Experimental Inquiries, Part II. p. 198.

nesciens unde tantum liquoris quotidie promanaret."[3]

If the external wound heal whilst the vessel continues open, the lymph is effused into the cellular membrane, and produces an anasarca, which continues until the orifice is united. The neighbouring branches then take up the extravasated fluid, and re-convey it into the circulation.

The thoracic duct, and the deep seated absorbent vessels, may be wounded by instruments which penetrate the cavities, or the muscular parts. Our judgment in these cases will be directed by the course of the wound, by the discharge which issues from it, and by the accumulation of fluid if the external aperture be united. Yet, Dr. Monro inflicted a wound on the receptaculum chyli

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[3] Ruysch Observat. Anatom. Chir. No. xli. p. 40. Vanderlinden mentions three cases, one of which occurred in his own practice, and followed the operation of phlebotomy. One of these cases was extremely distinct, a small probe could be introduced into the orifice from which the lymph flowed, until its passage was obstructed by the valve of the vessel. This accident has occurred also to Haller. *De Corp. Human. Fabrica*, Tom. I. p. 318.

of a pig, which was cured in a very short time; and in the mean while, the effusion of the lymph was prevented by its coagulation. Bartholin mentions a case, which is quoted by Mr. Cruikshank, where the thoracic duct was wounded, notwithstanding which the patient lived a long time, "longa fuit tabes." In a manuscript in my possession a case is quoted from Bohnius' *Renuntiation. Vulner.* of a man, who was wounded in the duct, "at least the liquor and mucus that came out of the wound made it appear so; the patient was nearly cured, but by excess relapsed and died."

SECTION VIII.

Treatment of Wounded Absorbent Vessels.

THE prognosis of a wound which penetrates the coats of an absorbent vessel, will be regulated by its vicinity to other important parts; the treatment will vary in like manner. All

wounds which penetrate so deeply into the thoracic or abdominal cavities as to injure the thoracic duct, will necessarily be attended with much danger, and the chances of recovery will be diminished by the participation of this vessel in the injury, and the debility which such an accident will produce.

The Surgeon can do little more than prevent inflammation by depletion, rest, and a strict regimen, and afterwards evacuate the fluids which may collect in the cavities.

In the extremities, various means have been adopted to suppress the flow of lymph. A roller will be generally useful. Ruysch, besides a bandage, applied clasps below the affected part; this treatment succeeded, and where it is insufficient, local applications may be added, such as alcohol, or the diluted mineral acids, which will cause the lymph to coagulate as it flows. When other means fail, the nitrate of quicksilver, or any other caustic, may be resorted to if the wound in the vessel cannot be secured by ligature.

SECTION IX.

Obstruction of the Absorbent Vessels.

WHEN the valves of the absorbent vessels become thickened, they project into the tube, and their edges being joined together, form a barrier to the passage of the fluid which the vessel conveys. Mr. Astley Cooper attributes this thickening to a scrofulous action;[1] it is probably the effect of inflammation, since a curd-like substance was contained between the thickened laminæ. The formation of a fungus within the duct, which was observed in the same case, and contributed to the obstruction, probably originated in similar actions.

In another case, two thirds of the course of the thoracic duct was filled by a caseous matter, which had been secreted by its coats, or absorbed from a diseased testis.[2]

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[1] Medical Records and Researches, for 1798.
[2] Ibid. See also Cruikshank, p. 47.

There is sometimes a deposition of ossific matter within the vessel, though the coats are free from disease;[3] the most remarkable instance of which is related by Mr. Cheston.[4]

On opening the body of a young man of twenty-two years of age, who had been admitted into the Gloucester Infirmary for pains in the back, hips, &c. more than half the pelvis was found occupied by a confused irregular mass, seemingly formed of schirrus, cartilage, bone and stone. A large substance which appeared cartilaginous, but which on drying, was found to be perfect bone, covered the bodies of the vertebræ, to somewhat above the kidnies. The lungs were also studded in many parts with a similar cartilaginous substance. On raising the aorta from the spine, a singular firmness was found like packthread, exactly in the situation of the thoracic duct, and was indeed

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[3] It is singular that the absorbent vessels have been found filled with ossific matter in cases of rickets, where a defective secretion constitutes the disease. It was probably rather a separation from the lymph which was contained in the vessel, and had been returned from the bones, than a secretion by the coats of the absorbent vessel.

[4] Philosophical Transactions, vol. 70.

that vessel, which was completely filled with ossific matter, excepting at the lower bulbous part, commonly called the receptaculum chyli. There was room enough for air to pass between the coat of the duct, and the adventitious substance within it, so that the receptacle which before appeared flat, upon throwing in air became rounded and fully distended, but this air was totally confined to the receptacle and could not be forced up the duct in the smallest degree. The receptacle was then slit open, and an attempt made to pass a bristle up the duct, but this was found impossible. Mercury was endeavoured to be forced up the duct, but not the smallest particle would pass."

"The coats of the duct did not appear to have undergone any morbid change; for in some places, where the substance it contained was not so strongly attached but that the coats would admit of being raised from it, they were found in a perfectly natural condition: at other places, where the attachment was inseparable, there was a greater appearance of ossification

externally, but this arose merely from the thinness of the coats."[4]

I am not acquainted with any case where obstruction of these vessels occasioned death, for the chyle and lymph are carried into the circulation, by the collateral branches; neither does the disease admit of relief from the Surgeon, if he were aware of its existence.

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[4] Consult Memoirs of the Academy of Sciences at Berlin for 1786,—7, and for 1792; and Soemmerring de Morbis. Vasor. Absorb. p. 45 and 92.

CHAP. IV.

DISEASES OF THE ABSORBENT GLANDS.

SECTION I.

Inflammation of the Absorbent Glands.

THE great irritability of these bodies, renders them liable to inflammation from various and very slight causes. [1] Amongst the most frequent may be mentioned inflammation, wounds, irritating ulcers, and absorption of morbific matter. The inflammation is generally symptomatic, but in some rare instances it is an idiopathic affection.

[1] An instance has been frequently quoted from Mr. Hunter, where it was produced by the puncture of a small bright needle.

The disease, as in other parts, may be divided into two kinds, acute and chronic. Acute inflammation is evinced by pain, heat, throbbing, redness and swelling, and is generally attended with sickness, and a peculiar depression of the vital power; the pulse is small and quick; considerable perspiration succeeds, the bowels are sometimes costive and the urine scanty and high coloured.

As the inflammation proceeds, the swelling and sympathetic fever increase, the redness becomes constant, darker, and does not abate by pressure. A doughy feel succeeds to the formation of matter, which is sometimes preceded by distinct shiverings. As the abscess approaches the skin, it becomes more elastic, and bursts, as in other parts, by producing ulceration of the integuments. This termination more frequently follows inflammation which is excited by venereal matter, than from simple irritation;[2] because excitement from the latter source, produces adhesion of the surrounding

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[2] Abernethy's Surgical Works.

cellular membrane which terminates the disease: but the constitution has little power of regulating the action of venereal matter, and it continues to stimulate until adhesion is destroyed.

The abscess is not always contained in the body of the gland; it is most frequently exterior, and the enlargement continues until the mercury affects the constitution. The thickening which accompanies inflammation of these glands, is produced by the condensation of the surrounding cellular membrane; and is more considerable in proportion to their natural size than in any other part of the body.

The character and appearance which the ulcer possesses, after the abscess has burst, depend also on the exciting cause. Where it is the effect of the venereal disease, it retains the thickened edge and base of the primary ulcer; but when excited by common irritation, it will vary according to the degree of previous inflammation, and the constitutional powers.

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Section II.

Treatment of Inflammation of the Absorbent Glands.

The common means of treating inflammation, such as local blood letting, and cold applications must be sedulously adopted until the inflammatory action has abated; and the further reduction of the enlarged gland must be accomplished by friction, blisters, and electricity.

When pus is formed, fomentations and poultices will be necessary to promote its progress to the skin, and the ulcer must be treated like other ulcers. If a venereal origin be suspected, mercury must be superadded to the local treatment.

Section III.

Ossification of the Absorbent Glands.

When the arteries which ramify on the substance of the absorbent glands, assume a disposition to secrete ossific matter, the diseased action commences at one or more points,

and is extended until the gland is converted into a bony mass.

When the disease occupies the bronchial glands, it excites considerable irritation, cough, fever, and expectoration of pus, until the ossific or earthy matter is coughed up, when the ulcer heals and the patient recovers. [1]

This action is sometimes found to have existed in the glands of the mesentery; [2] but I am not acquainted with any instance where the external, or subcutaneous glands were similarly affected.

We are not, I believe, sufficiently acquainted with the minutiæ of this disease, to offer any diagnostic symptoms, which certainly denote its existence in an early stage. The irritation in the lungs which the ossific matter produces, so closely resembles the irritation from tubercles, that it appears difficult, if not impossible, to distinguish them, until the bony matter becomes expectorated.

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[1] Cruikshank. Le Dran gives a very minute history of this complaint. *Le Dran's Surgery*, p. 128.

[2] Baillie's Morb. Anatomy, p. 112, and 202, 3rd. Edit. 8vo. Dr. Monro in Med. Transactions, vol. 2. p. 331.

The treatment will necessarily be confined to abating the local irritation, and to the support of the patient's strength, by a nutritious, though not stimulating diet.

SECTION IV.

History of Scrofulous Absorbent Glands.

The scrofulous enlargement of an absorbent gland, is generally perceived when about the size of a large pea; and occurs most commonly between the second and the twelfth years of a child's life, but occasionally after puberty. The gland is hard and moveable, gives no pain, and may continue without increasing during the early part of the patient's life. When it does increase, its progress is slow, being one, two, or more years, before it excites inflammation of the surrounding skin. The hardness, and freedom from pain, continue during the greatest part of this time.

The disease occupies a gland in the neighbourhood of the lower jaw, and often arises without any perceptible exciting cause; at other times, it is accompanied with, and preceded by, irritation upon the head, or the membrane within the nose becomes inflamed, and the inflammation extends to the upper lip; a gelatinous fluid is effused, and produces considerable thickening. If the increased action be continued, the mucous follicles become ulcerated, and the more fluid part of their discharge being evaporated, the remainder hardens into a scab of a pale yellow colour tinctured with brown. The child endeavours to obtain relief from the irritation, by removing the scab, and thereby causes it to extend below the columna nasi; and when combined with the thickening above mentioned, it constitutes the tumid and chopped lip, which has been noticed by almost every author who has written on the subject.

Those children who have a fine complexion, fair hair, ruddy cheeks, a smooth skin, a large, lucid, and blue eye, with a somewhat

dilated pupil, are said to be most subject to this complaint; but every Surgeon, who has seen much Scrofula, will, I believe, admit that it occurs in all complexions, and in all temperaments; I have seen it in an African as well as in the European.

This disease not only occurs in different constitutions, but assumes different characters according to the constitution: hence great difficulty has arisen in giving its generic characters. The difficulty has been got over by ascribing the variety to the scrofulous virus, which has been said to vary its action with the constitution. An almost endless latitude thus being given, every difficulty experienced in healing an ulcer, is commonly ascribed to this insidious agent. Not to enter into this controversy prematurely, on the one hand, and not to explain away what we cannot account for, on the other, I shall divide the History of Scrofula into three *species*; because such a division appears not only to simplify the complaint, and render the observations which I have to make, more intelligible; but

enables us to discriminate with more precision, what modes of cure should be adopted.

The first stage of the process which is called Scrofula, is almost always attended with an increase in the size of the affected gland; but in the first, and most frequent species, an early effusion of fluid is also perceptible, which is exterior to the body of the gland, and is contained in, and circumscribed by, the adjacent cellular membrane.

The distension which this effusion produces, becomes an additional source of irritation. The arterial action is increased, the vessels acquire the power of changing the properties of the circulating fluid, and pus is secreted. An abscess is thereby formed, which is at the same time a secreting and an absorbing surface; its boundaries are circumscribed by adhesive inflammation, and a new process takes place. In its former stages, the secreting vessels possessed greater activity than the absorbent, and increased deposition was the consequence; but as the increased secretion distends the abscess, the newly organized parts become

absorbed,[1] and the cavity consequently extended. This is called ulcerative inflammation. Mr. Hunter shewed that it is the property of all matter to approach the surface, even where there is less opposition in other directions; the absorption takes place, therefore, most actively towards the skin.

We sometimes find the abscess excites so small a degree of irritation, or the secerning vessels possess so little activity, that they do not keep pace with the absorbents; and more of the walls, or of the contents of the abscess, become absorbed, than is sufficient to take off excessive distension. As the fluid approaches the surface, the skin appears more flaccid, and the abscess may continue in this state many weeks; because the advance of the pus towards the skin, does not cause sufficient action to produce inflammation of that membrane. The abscess feels soft like a bladder not entirely filled, and what

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[1] "Weak, diseased, and newly formed parts are easily absorbed when exposed to pressure or irritation."

J. Hunter.

would otherwise be the most convex part of the swelling, appears almost flat. The fluid which is discharged when the abscess bursts, like every other stage of the process, is imperfect, and consists of flakes of coagulable lymph, swimming in a half puriform fluid.

The pus is formed exteriorly to the gland, so that when the skin and cellular membrane are absorbed, the cavity of the abscess is very superficial, and the tumour continues almost as prominent as before the fluid was discharged.

Occasionally, the abscess follows immediately after the irritation in the gland, and appears to prevent any increase of its substance; the relative proportion of these symptoms varies, therefore, according to the facility which the vessels evince for secreting pus, and this diversity materially affects the subsequent ulcer.

When the contents of the abscess are discharged, the skin, by collapsing, comes in contact with the diseased cellular membrane which surrounds the gland, and which constitutes a

considerable part of the enlargement; these sometimes unite in the circumference, and resume their healthy action; and this union confines the ulceration to a smaller extent: but more frequently, the diseased parts will not adhere, and the restoration can only be effected by granulations. The surface is so little painful, that the patient suffers it to be exposed, and the discharge incrustates, and forms a scab upon the small ulcerated aperture. As pus continues to be secreted, the diseased skin becomes again distended, until either the scab is removed, or the skin ulcerates in another part. There is in this way a successive collection and discharge of the fluid; but at length the ulcerated points are so numerous, or so extensive, that a scab cannot be formed. The skin continues during this time of a dusky brown colour, rather than red, like a part to which a hot instrument had been applied.

As the ulceration becomes extended, one portion of the sore will have become clean, whilst the action is so trifling that a slough

continues to adhere in other parts during many weeks. Not unfrequently a sinus is formed towards the most depending part of the cavity, and is caused by a want of adhesion around the aperture; one or more points of ulceration may be observed in the skin which covers the sinus, these spread by successive sloughing until they become gradually extended into each other. The death of the skin is occasioned by the death of the cellular membrane, and of the vessels which pass through it, to organize the cutis; previous to its destruction, a number of red vessels may be traced upon its surface, which cause the skin to appear inflamed. This only proves the effort which is required to retain life in the part.

We have seen that it requires some months, or even, in many cases, years, to produce ulceration; we cannot, therefore, reasonably expect the parts which have been so long under the influence of disease, will immediately be able to resume their healthy actions. This is further retarded by the incomplete process which, though it has so long

subsisted, is accompanied with the thickening and enlargement which existed prior to the formation of matter. The ulcer is nearly in the state of a gland which has undergone the action of acute inflammation, and which has been opened by the lancet before the abscess pointed. The diseased parts must ulcerate or slough, before any attempt will be made to fill up the wound by granulations, but there is this difference, the inflammation in one case had been violent, and speedily terminated by the formation of pus, and its further progress had been arrested by the Surgeon; but in the other, the ulcerative inflammation had long existed, and the constitution was less able to regulate the disease, and to restore the parts to healthy action. The compound process which constituted ulceration being kept up by habit, continues therefore after the cause which produced it has ceased.

It has already been observed that when a sinus is formed, the skin ulcerates or sloughs, as the cellular membrane is destroyed; so

also where the ulceration is more regularly extended, the subcutaneous cellular membrane continues to ulcerate in the circumference of the ulcer, even after granulations have arisen in the centre nearly even with, or above the surface; but the skin being much more vascular, possesses greater powers of resistance to the ulcerative action, and this greater resistance produces the thin edge and overlapping, which is so striking a character in these cases. This I conceive is what Mr. Crowther means by a "phagedenic ulcer" which yet "is not phagedenic, because it wants the fiery edge, and painful surface, of that ulcer."

In active inflammation, there is not only more constitutional power than in scrofula, but less disposition in the skin to slough, because the diseased cellular membrane is so quickly thrown off, that the vessels of the cutis are able to support the increased action, until granulations rise, and unite it with the parts beneath. Besides, the lateral extent of a scrofulous abscess is much greater in proportion to the quantity of pus contained in it,

than one which follows acute inflammation; the skin is therefore further separated from the parts with which it is connected, and its chance of supporting vital action much diminished; that this is the only reason for the difference between these cases, may be proved by introducing a tent, or other extraneous body, into the ulcerated opening which succeeds active inflammation; this, by keeping up the irritation, will cause the death of the cellular membrane, and ultimately of the skin, and produce an ulcer equally difficult of cure with one which had been originally considered scrofulous.

When the diseased skin has ulcerated to a considerable extent, the tumour either gives rise to granulations, which are fungous, broad, and flabby, or, in more indolent cases dies, and the bottom of the ulcer presents a sloughing surface. In the former case, the granulations press upon the remainder of the diseased skin, and facilitate its destruction; in the latter, the edges of the sore are thickened, and the discharge watery; the ulcer neither

spreads, nor fills up, but presents the same unvaried character, the absorbents being unable to remove the living parts which are in contact with the sloughs, and by which they would be separated. This is also frequently observed in indolent ulcers of the lower extremities. When at length granulations rise, a part of them will appear florid and healthy, whilst the remainder are tawny and dwarfish, as if stinted in their growth; or a film of mucus extends from one point of granulation to another, and adheres to them.

Where the granulating surface appears glossy, and the points which shoot forth are broad and flabby, they rise above the skin and require pressure; there is often, also, a fiery surface, and wherever this is found, great irritability exists. There is no contraction in the size of the wound, and red streaks, as of vessels, pass over the granulating surface, and bleed from very slight causes. This surface is easily destroyed.

So long as the burrowing disposition is

continued, the skin which covers it will participate in the disease, and there will be little disposition to cicatrize, for new skin cannot be formed from that which is diseased; but an island of skin will sometimes form on the centre of the sore, which gradually extends and covers a considerable part of the ulcer. When the ulcer is nearly healed, the patient feels little inconvenience, the discharge is trifling, and he neglects to keep its surface covered, lymph is exuded, and by evaporation of the more watery parts, a scab will be formed, which continues to adhere, in proportion to the time required for the completion of the skinning process underneath it. When ultimately the ulcer heals, it leaves a large, pale, shriveled, and unsightly scar.

The second species of scrofulous affection in these glands which influences the progress of the ulcer, is attended with simple enlargement of the glandular substance, or of the adjacent parts. It is formed by the effusion of coagulable lymph, within the interstices of the part, into which blood vessels shoot, and

it becomes organized, which often terminates the disposition to enlargement. But more frequently the swelling becomes the stimulus to its own increase, and the distention it occasions produces an increased effusion, "the parts surrounding the tumour may be considered as the source from which it derives its nutriment," like other tumours "it grows by its own inherent powers," and continues to enlarge, until by a gradual condensation and adhesion of the surrounding cellular membrane, it approaches the skin and adheres to it. The tumour may produce these effects without causing much redness, and ulceration takes place in consequence of the distention, rather than by the participation of the skin in inflammatory actions. The size of the ulcer varies according to these circumstances; for where the inflammatory actions are considerable, the skin participates in them, and the adhesions which connect it to the gland are often stronger, than when that body has attained a greater magnitude, before the skin is affected by it. But, though the adhesions are firmer in proportion to the

rapidity of the disease, it must also be acknowledged, that there is greater danger of the newly formed parts being destroyed, because the inflammatory action will continue after ulceration has taken place. Besides, the skin ulcerates in proportion to the actions it has to sustain; the diseased cellular membrane which surrounds the gland, becomes consequently exposed to a greater extent, and being unable to support diseased action, sloughs, and is separated; this separation exposes a second layer of cellular membrane, which sloughs also. This action continues until it extends to the substance of the gland, which has greater power of resistance, and gives rise to granulations. As the gland is, however, under the influence of disease, and is so much increased in size as to keep up the irritation in the surrounding parts, the granulations are broad, pale, and flabby, and the new skin is long in being formed.

In the most indolent, and most frequent cases, a very small discharge, after ulceration has taken place, is sufficient to prevent the

extension of the disease, and as little inflammation exists, the newly formed parts retain their vitality, and the ulcer is confined to a small space. Its surface is covered by a slough, which appears semi-transparent from a suffusion of a trifling watery discharge. The slough is very long in separating, and when it is partly accomplished, a single point of granulation shoots forth; but as the remainder of the slough continues attached, no cicatrization can take place.

In the third species of scrofulous enlargement, I mean to include those cases where the abscess is formed in the substance of the gland, and where a portion of its parietes must be absorbed before ulceration can take place. If the cells of the gland are separated by adhesion, each cell may contain an abscess, and successive openings are formed for their discharge. This species seldom occurs.

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SECTION V.

Theory of Scrofulous Absorbent Glands.

ALMOST every writer with whose works I am acquainted, ascribes this disease to the stimulating qualities of the fluids which pass through the absorbent glands. It may perhaps be sufficient to enumerate the opinions of a few only.

"I shall endeavour to fix upon a peculiar acidity in the serum of the blood, and describe the King's-evil to be a tumour arising from a peculiar acidity in the serum of the blood, which whensoever it lights upon a glandule, coagulates and hardens. If this acid humour be simple, the disease is a simple struma; if joined with a malignity, or any other humour, it makes a mixed tumour as a malignant struma."[1]

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[1] Wiseman.

"The scrofula is a tumour in the glands of the neck, as also in all the other glandular parts of the body, and consists of a very malignant nature."[2]

"Scrofulous cases are very difficult to cure, and very few remedies affect their cause. They frequently occur in some climates and nations, and are not seldom the inheritance of our ancestors' irregularities; their source is in the blood, their seat in the glands and joints. The acid which causes these cold coagulations is exceedingly difficult to be destroyed."[3]

"It has been long confessed that mercury alone is capable of working a thorough cure in these disorders, whether by liquefying, dissolving, and putting in motion the liquors, or by destroying the acids and viscous ferments which occasion the lymph to coagulate &c."[4]

"Strumous, and scrofulous disorders arise from a schirrous humour of the conglobate or

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[2] Le Clerc.
[3] Bellostes' Hosp. Surgeon, vol. ii. p. 19, & 20.
[4] Ibid.

lymphatic glands, or at least from a tumour that approaches very near to the nature of schirrus, from whence it is plain that they are occasioned by a thick lymph stagnating in the glands."[5]

"The king's-evil proceeds from a thick phlegm, which is sometimes acrimonious and salt, in those which are painful."[6]

After a definition of this disease, and after the relation of several cases, Turner observes, "that the glands are the common seat of this malady is beyond controversy; but the manner of its production, out of what juices, and by what vessels conveyed, is not so easy to determine."

"What shall we say when we find the very marrow of the bones infected, nay, the solidity of these parts themselves, not fence sufficient against the acrimony of these humours?"

"Witness still the worst of all, the carious ulcers and terrible exostoses; witness the formidable spina ventosa, where the corroding

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[5] Astruc on the Venereal, vol. ii. p. 114.
[6] Dionis' Surgery.

solvent beginning inward, preys upon the bone like an aqua stygia, sive fortis duplex, penetrating the inward lamellæ, eating through the outward cortex, and this even in the largest bones of the body; so that in this particular, for its corrosive nature, it may be said to come up with, and even to surpass the pox itself, although the acrimonious salts by which they act, are of a diverse nature."[7]

"These swellings (scrofulous) are the effect of a peculiar constitutional taint as yet unknown, and of which no certain opinion can be given."[8]

"The scrofulous virus, when thrown on the surface, so far resembles the cancerous, according to the description of the late ingenious Mr. Hunter, that it is inclined to spread to a considerable extent."[9]

Dr. Kirkland also represents this disease as sui generis. "Its primary cause being one of

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[7] Turner's Surg. vol. i. p. 120, 124, and 125.
[8] Nisbet's Clinical Guide, vol. ii. p. 149.
[9] Underwood's Diseases of Children, vol. i. p. 349. See also Underwood on Ulcers.

those secrets in nature that has not yet been unveiled."[10]

"The different termination of glandular swellings of a cancerous, scrofulous, venereal nature &c. authorize the presumption of specific ferments, or virus, which dispose the accumulated matter to contract such, or such a kind of alteration."[11]

Even Mr. Hunter appears to subscribe to this opinion. "There are some parts much more susceptible of specific diseases, than others. Poisons take their different seats in the body, as if they were allotted to them. Thus the skin is attacked by what are vulgarly called scorbutic eruptions, as well as many other diseases; it is also the seat of small-pox and measles: the throat is the seat of action of the hydrophobia, and hooping cough. The absorbent system, especially the glands, are more susceptible of scrofula than most other parts."[12]

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[10] Medical Surgery, vol. ii. p. 451.
[11] Richerand's Physiology, p. 111, & 112.
[12] On the Blood, p. 5, and 6.

And Dr. Hunter believed "from the universal swelling immediately under the skin in scrofulous patients, that the lymphatics took up some noxious particles from the atmosphere." [13]

But Dr. Cullen more particularly has endeavoured to establish this theory into a system, and has almost universally succeeded. "It seems to be a peculiar affection of the lymphatic system, and this in some measure accounts for its connection with a particular period in life. Probably, however, there is a peculiar acrimony of the fluids, that is the proximate cause of the disease. [14]

He classes it therefore with syphilis, scurvy and jaundice, in the order "IMPETIGINES," or with those diseases "which depend, for the most part, upon a depraved state of the whole of the fluids, producing tumours, eruptions, or other preternatural affections of the skin." [15]

These opinions appear to have been founded

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[13] Cruikshank's Anatomy, p. 112.
[14] First Lines of the Practice of Physic, vol. 4, p. 372.
[15] Ibid. vol. iv. p. 357,—8.

First, on the disease being situated in the absorbent system.

Secondly, on the constitution of the patient.

And lastly, on the progress of the local actions, and on the difficulty of cure.

There appears to me nothing more likely to lead to erroneous doctrines, than the classification of diseases from one leading symptom. It is well known, that the absorbent glands become irritated and inflamed, by the passage of morbific fluids through them, and that the inflammation, and the consequent ulceration, are regulated by the peculiar action of the stimulating fluid. Matter absorbed from a venereal chancre, from the small or cow-pox, from a wound inflicted by the bite of a venomous serpent, of a mad dog &c. will cause inflammation of an absorbent gland, and a peculiar action either in the subsequent ulcer, or in the constitution, or in both.

As every absorbed fluid has to pass through the glands, as they are stimulated, inflamed, and enlarged, by the passage of noxious matter, and as enlargement takes place in Scrofula,

it was thought evident that this disease originated also in a peculiar acrimony, or irritating quality of the fluids: how inconclusive this reasoning is, I shall hereafter endeavour to prove; at present it may not be improper to shew that according to Dr. Cullen, the disease is in some degree at least governed by external agents. "The Scrofula," says that author, "generally shews itself first at a particular season of the year; and at some time between the winter and the summer solstice; but commonly long before the latter period. It is to be observed, further, that the course of the disease is usually connected with the course of the seasons. Whilst the tumours and ulcerations, peculiar to this disease, appear first in spring, the ulcers are frequently healed up in the course of the succeeding summer, and do not break out again till the ensuing spring, to follow again with the season the same course as before."[16]

This influence of the atmosphere over the

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[16] First Lines of the Prac. of Physic, vol. iv. p. 364.

actions which constitute what is called scrofula, appears from even this author's account, much too general and extensive, to have enabled him to attribute every phenomenon of this unpleasant complaint, to "acrimony of the fluids;" and this view of the subject, appears to swell into greater importance when we consider, that the disease occupies those parts, which in children are most exposed to the action of the atmosphere, that it is most frequent in those countries where the climate is most variable, and at the most variable seasons; and that we can only attribute its very frequent occurrence in this kingdom to the climate, which has become proverbial.

The connexion of the application of cold, with this disease, appears illustrated by the following

CASE.

Mary Taylor, a young woman about seventeen years of age, servant to a farmer, after washing a considerable part of the night, and till dinner time, was ordered by her master

to pull turnips for the oxen; in which she was employed the remainder of a winter's day, and was exposed to a considerable fall of snow: her catameniæ which were upon her, immediately ceased; she was taken ill in the evening; was feverish, and being unable to work, was conveyed to her home. Soon afterwards, and almost simultaneously, she had pain in the joints of the right ancle, and wrist; the metacarpal joint of the left forefinger, and the left elbow, were also affected. The pain continued without intermission, the parts were considerably swollen, and burst in succession. The discharge was limpid, and mixed with flakes of curd. About six months afterwards I chanced to be in the country, and was desired to see her. She was then emaciated and hectical, the joint of the finger was destroyed, and the bones of the ancle and wrist were carious. She soon afterwards died.

The following case, which I have transcribed from Mr. White's Essay on Scrofula, is equally important. "A very healthy young woman, about twenty-four years of age, without

any other appearance of predisposition to this disease, than that of a fine skin, was coming from Yorkshire to London during winter. From an accidental circumstance, she was obliged to take a very long stage on the outside of the coach, at an early hour in the morning, which occasioned enlargement of the glands in the neck, and on the arm that was more particularly exposed to the cold; several suppurated, and were, for a very long time before I saw her, very troublesome."[17]

I have already quoted Dr. Cullen's opinion, that a depraved state of the whole of the fluids produces these tumours &c. yet in a subsequent part of his first lines he says, "in the cases of more violent Scrofula, where every year produces a number of new tumours and ulcers, their acrimony seems at length to taint the whole fluids of the body."[18] I need not point out the contradictory nature of these quotations. The cause which in one instance produces the disease, is in the other only

[17] Essay on Scrofula, &c. p. 61.
[18] First Lines of Prac. Phys. vol. iv. p. 370, 371.

an effect of it. Again he says "its appearance in particular constitutions, and at a particular period of life, and even its being an hereditary disease, which so immediately depends upon the transmission of a peculiar constitution, are all of them circumstances which lead me to conclude upon the whole, that this disease depends upon a peculiar constitution of the lymphatic system;"[19] yet, in a preceding page, Dr. Cullen has observed that "it affects the joints," and that "the ligaments and cartilages are eroded by it."[20] In short, we observe through the whole of his treatise on this subject, a vacillation and fluctuation of opinion, seldom found in other parts of his justly celebrated work. He believes that "the nature of the complaint is not easily to be ascertained," and appears uniform only, in describing the influence which the seasons have over it.

By loading his theory with this multiplicity of opinion, Dr. Cullen has not, as may be

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19 First Lines of Prac. Phys. p. 373.
20 Ibid. p. 370.

perhaps imagined, demonstrated its deviation from natural actions, he has only shewn that his conclusions taken singly, are unable to account for the phenomena in a satisfactory manner, even to himself.

It is impossible to reconcile this author's general opinions with those which he has endeavoured to establish on this particular subject. "From the earliest accounts of physic with which we are acquainted, it appears, that from the most ancient times down to the present, Physicians have been attached almost entirely to the study and consideration of the fluids, and from the supposed state of these, have endeavoured to explain the phenomena both of health and of sickness. In this, however, they appear to me to have been unfortunate, for not to mention the imperfection and falsehood of the many speculations both of galenists and chemists, which have formerly prevailed on this subject, I would venture to assert that the doctrine concerning the fluids, is still the most imperfect of our physiology."[21]

[21] Materia Medica, vol. i. Part 65, 4to. Edit.

"Nothing has been more common among Physicians, than to suppose that an acrimony of the fluids is a frequent cause of disease. It is very possible that it may be so, but it appears to me that the supposition has been too rashly and too frequently admitted, and that it has been for the most part purely gratuitous, without any proper evidence of it in fact."[22]

"Upon the whole of this subject, therefore, I would conclude, that the supposition of an acrimony as the cause of diseases, has been too frequently admitted in our modern pathology; and that it ought not to be admitted, unless when the cause and existence of it are well ascertained."[23]

It is much to be regretted, both for his own reputation, and for the benefit of the profession of which this author was so distinguished an ornament, that he did not more strictly adhere to the opinions which I have quoted, and which reflect so much credit upon his judgment.

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[22] Materia Medica, vol. i. Part 77.
[23] Ibid. p. 78.

I cannot more strikingly exemplify the probable fallacious tendency of his opinions on this disease, than by transcribing the following passage from his works. The reader will, I hope, pardon, the repeated quotation. When pointing out the imperfections of the Boerhaavian system, he observes, "although it cannot "be denied that the fluids of the human body "suffer various morbid changes, and that upon "these, diseases may primarily depend, yet I "must beg leave to maintain, that the nature of "these changes is seldom understood, and more "seldom still is it known when they have taken "place; that our reasonings concerning them "have been, for the most part, purely hyphothe-"tical, have therefore contributed nothing to "improve, and have often misled the practice "of physic. In this, particularly, they have "been hurtful, that they have withdrawn our "attention from, and prevented our study of, "the motions of the animal system, upon the "state of which, the phenomena of diseases "do more certainly and generally depend." [24]

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[24] Preface to First Lines of Prac. Phys. p. 32, & 33.

The justice of the application of these remarks to the present subject, will not be doubted by those who observe in Dr. Cullen's description of the disease, many marks of an intelligent Physician, whilst as he approaches the doctrines of the humoral pathology, he wanders into error and confusion. Had not Dr. Cullen essentially contributed to our medical knowledge, I should not have troubled the reader with this imperfect refutation of what appear to me erroneous conclusions.

Almost every phenomenon of the disease appears to me conclusive against this doctrine. I beg leave to notice those which are most strking.

If the acrimony which is said to be both the cause and the consequence of Scrofula, be circulated in the fluids, and deprive the system of its healthy action, why does not every wound assume this character; why does a healthy action follow the amputation of a scrofulous joint? The following case will illustrate this subject.

A young man who is afflicted with glandular enlargement and ulceration beneath

the lower jaw, and whose sight is injured by frequent attacks of chronic inflammation in the eyes, had the skin torn off the external surface of the arm, from the insertion of the deltoid muscle to the elbow, where there was an orifice into which the finger might be introduced. The cellular membrane was here torn from the extensor muscle, and the wound led downwards to the external condyle of the humerus, which was abraded.

There had been very little hæmorrhage, and the parts were brought into contact by adhesive plaster. The dressings were removed on the third day. The upper portion of the wound looked healthy, and the discharge was puriform, whilst the lower presented a sloughing surface. The eschars separated in a few days, during which, granulations shot forth in the superficial portion of the wound, and it healed rapidly. The man had little pain or inconvenience; and granulations now rose in the most injured part, but more slowly. The wound was healthy, and contracted in size; but at this time he

removed the dressings, kept the sore exposed, and the granulating surface, after inflaming, sloughed away. It required some time for its re-production, for the irritability continued. The granulations were more florid and broader than before, and I now became acquainted with the cause, by observing a glazed film over the surface, as if disposed to scab. It was evident that the plaster had been removed, and this being henceforth avoided, the wound healed, whilst a small ulcer under the ear, which was accompanied with an enlarged gland, and had existed many months, continued in the same state. Why the healthy action took place in one instance, and not in the other, will be hereafter inquired into. It is very evident that acrimony of the fluids cannot account for it.

It has been urged by the favourers of Dr. Cullen's theory, that as these enlarged glands appear in successive generations, the disease must be hereditary; and as it possesses the same characters in both instances, it has been considered as a proof of a peculiar

and specific excitement. This is, however, by no means the case. There are numberless diseases which appear in certain families and constitutions, which are not even suspected to depend on acrimonious fluids. Indeed all that is admitted by this definition, is a constitutional predisposition to fall into diseased actions. If the exciting cause be not applied, the disposition remains dormant; on the other hand, a similar action may be excited, though there have been originally no reason to expect it.

This was Mr. Hunter's view of hereditary disease, and it has been more or less generally admitted since his time; but Mr. Hunter went farther, he asserted, rather prematurely, that no disease was hereditary. Subsequent facts have fully shewn that specific diseases are occasionally transmitted from the parent

[25] "Rien n'est" says Pouteau "donc plus erroné généralement que l'axiome tant répété que le germe des maladies passe des peres aux enfans, *abeunt in natos patrum cum semine morbi.*" The same author adds "Bornons-nous donc simplement á avertir que les enfans ont, plus que tous les autres, de fâcheuses dispositions aux maladies dont leurs parens ont été entichés."

to the offspring; for children are affected with syphilis, or with small-pox, previous to parturition. If then Scrofula, like these disorders, originated in a diseased action excited by the fluids, and if, when once excited, it possessed the power of extending its action to any other part of the same, or of another system; we should expect children to be born with scrofulous complaints; and I know not who would venture to inspect a body with the mesenteric glands enlarged, or with ulcerated lungs. "Predisposition has no reference to morbid poisons, but implies an original, usually an hereditary formation in the constitution, which renders it liable to fall into certain diseases peculiar to certain climates, or excited by certain causes, as scrofula, or madness.[26]

That Dr. Cullen's theory is incorrect, and that Scrofula is not, as Mr. Hunter insinuates, a specific disease[27] which precludes other

[26] Adam on Morbid Poisons, 2nd. Edit. p. 8.

[27] By a specific disease I conceive is meant one whose actions are excited and regulated, not by natural operations of the living powers, but by a peculiar and specific agent, which continues to exert its influence, and renders the system unable to restore the affected part to an healthy action.

constitutional actions, is proved by the supervention and regular progress of small-pox, measles, and cow-pox, though the system be labouring at the same time under scrofulous diseases;[28] but it is further proved not to be a peculiar disease which originates in the "vitiated fluids" of man, since many domestic animals are afflicted with it.

Sometimes during this process a contiguous gland enlarges, and pursues the same course. It has been argued, that this is a proof of a peculiar irritating matter, and the argument would have some force, if any regular law were observed. But it cannot be an object of surprise that the indolently increased action which I have endeavoured to point out, as the proximate cause of Scrofula, be communicated from one gland to another, or that they should be regulated by the same constitutional and local action, which influenced the primary enlargement. We find, however, that fresh tumours

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[28] See the Report of the College of Physicians and Surgeons of the Vaccine Institution in Dublin, in the Appendix to Willan's Treatise on Vaccine Inoculation.

form, or the ulcers spread, whilst a contiguous ulcer heals. It appears, therefore, to prove the very reverse of this position; for if the original disease be produced by the stimulating qualities of the circulating fluids, and if this stimulus ceases to irritate and allows the natural powers to restore the injury, how much more should these powers be able to overcome the action in parts which have only recently become influenced by the disease, and where it is not so tenaciously kept up by habit.

Another distinction which has been shewn to exist between irritation in the absorbent glands, which is excited by common causes, and that which is the effect of a specific agent, is the direction in which the enlargement takes place. That which is the effect of the latter, is invariably in the course of absorption, whilst the former takes also a contrary direction. The successive enlargement of scrofulous glands is frequently, but by no means always, in the course of absorption; for an enlargement near the elbow is followed by others in the fore-arm, and the disease is

also propagated down the chord to the testis.[29]

There is no fact which is founded on a more extensive observation, and which therefore ought to be more generally admitted as an axiom in pathology, than that those parts are soonest removed by absorption, which possess least vitality, and which would easily slough away when inflamed. It appears ordained that they should be absorbed to prevent their death. If then Scrofula were a specific disease, we should expect the ulcers to observe peculiar laws, whereas those who trace a scrofulous ulcer most accurately, will find that it affords the most favourable opportunity for verifying the axiom which I have mentioned.

The difficulty of cure has been said to originate in the peculiar acrimony which produced the disease. But as this assertion alone, is not a sufficient proof of that cause existing, it will scarcely be necessary to enter upon it in this part of the essay. I shall just observe,

[29] Pearson's Observations on Cancerous Complaints.

that scrofulous ulcers heal without a specific remedy, and that this appears to militate against such a conclusion.

Neither can the peculiar appearance of the discharge be at all illustrative of such a cause. The discharge in syphilis and small-pox does not, as far as analysis goes, shew the existence of any peculiar substance. But this fact is illustrative of a much more important conclusion, that the actions which a discharge excites, will alone enable us to form accurate conclusions of its nature; and they teach us to watch the phenomena of disease, rather than trust to the wanderings of hypothesis and conjecture.

Those Surgeons who are of opinion that the disease arises from acrimony in the fluids, will allow that the diseased action becomes subverted when granulations rise; and that it becomes extinct when the ulcer has healed: at least, the healing of the ulcer is a complete proof that the constitution is able to destroy the effects of this acrimony, and it has been long acknowledged that when a disease

becomes subverted, whether by the power of the system, or by the action of medicine, the cause which produced it becomes perfectly inoffensive. A Caviller might argue that the granulations are not healthy, and that they retain the characters which have marked every stage of the process. But the argument loses its power, when it is considered that if these granulations were formed by diseased actions, the fluid which they secrete ought to retain its qualities, and extend the disease.

It may indeed be taken as a general law, which appears strengthened by every fact with which I am acquainted, that no disease is regulated by alteration in the fluids; because on the one hand, the fluids cannot be what is called vitiated, but in consequence of imperfect or diseased actions: neither can they reproduce disease, but by exciting an action in the part to which they are applied, by which action, the progress and appearance of the disease will be regulated.

Observation and theory alike tend to convince me, that the general opinion on the

origin of this disease, and the laws by which it is regulated, are incorrect. To satisfy myself yet farther, and to bring my opinions to the test of experiment, I determined to introduce the pus, which was discharged from a scrofulous ulcer, into the system of another person; and feeling, that however confident of this fact, I could have no right to subject any other person to the risk, if any risk existed, I determined to try the experiment upon myself.

December 2nd. —— I visited the son of C * * * * * * * * who has been several years affected with scrofulous diseases. I never saw a more extensive chain of enlarged glands. They occupy the left side of the neck, and extend from the mastoid process to the axilla, where there is one very much enlarged and ulcerated. The submaxillary absorbent glands, the cervical and clavicular glands, on the opposite side, are equally diseased. The bronchial glands also are probably affected, since the boy has much cough and expectoration, with night sweats and diarrhœa; he is

much emaciated, and his breathing is difficult.

Thinking this a favourable opportunity, I dipped a lancet in the discharge which thinly covered the sore, and immediately punctured the back of my left hand, between the extensors of the thumb and fore-finger. I withdrew the lancet, and having again covered the point with matter from the ulcer, I made another puncture on the anterior surface of the fore-arm, about two inches from the wrist, and between the pronator and supinator muscles.

I had occasion to wash my hands soon afterwards, and found the friction of the towel produce a little heat and redness in the puncture on the hand, which continued about half an hour. The hand was afterwards exposed to cold in riding.

The puncture on the hand occasionally felt warm during the day, but the arm was easy. A little redness was visible around each puncture, and the redness and heat gradually increased towards evening; transient springing pains also excited occasional attention.

3rd. I perceived an itching sensation in each puncture, whilst in bed this morning, attended with a trifling heat. The redness continued during the day, and was a bright scarlet towards evening. No inconvenience nor soreness on being rubbed.

4th. The redness around the punctures is much abated. No inconvenience.

5th. Still less redness.

6th. Punctures healed, though the marks were visible some days afterwards.

I repeated this experiment several times, with a similar result.

The only remaining point for consideration, is the peculiar constitution, which attends any marked case of this disease, and has been noticed by all authors for the flaccidity of the muscular fibre; but that there is nothing specific in the cause which produces it, appears evident, since it follows debility produced by other diseases. How often are scrofulous affections, the consequence of small pox, and of the debility which is induced by a course of mercury? How frequently are scrofulous abscesses produced after typhus fever?

CASE.

A healthy looking young man, twenty-one years of age, after a few days intemperance and consequent exposure to cold, was seized with inflammation of the right leg. I saw him ten days after its commencement, the whole limb was of a dark red colour. It was considerably swollen, and very painful, several large blisters had risen, and were filled with a dark coloured serum. His pulse was quick and tremulous, his head and back painful, he had much thirst, no appetite, tongue dry and clean, skin hot. His friends had given him a quantity of medicine, by which his bowels were exceedingly purged, his stools were dark coloured and offensive, and his urine scanty. After a dose of calomel and opium, I ordered him a mixture of bark combined with laudanum, and he was directed to take wine and porter in moderate quantities. The limb was wrapped in a poultice of bread and water, which was ordered to be kept moist. By these means the pulse rose, the appetite returned, and the purging ceased. The

inflammation also became less considerable, but had extended to the cellular membrane; matter was formed, and three abscesses burst, and discharged profusely.

During this time, he complained of pain in the right elbow, though little swelling or inflammation had appeared; the left leg and arm also became painful, but there was no discoloration. At the end of the third week, a small collection of matter was visible, near the tendons which form the inner hamstring; it was soft, and he could bear pressure upon it without uneasiness. A similar abscess which had formed upon the right elbow, now burst, and three or four others were soon after perceptible upon the left arm, on the inner side of the biceps muscle, in the course of the principal vessels; these abscesses possessed the characters which have been described as characteristic of Scrofula.

Mr. Hunter thought that Scrofula succeeds the small-pox, in consequence of one specific disease running into the other; but if this opinion were correct, it would not follow diseases

which are so very dissimilar; and whoever will refer to Mr. Hunter's work, will see that he has mentioned this hypothesis to support a previous theory, and that he has not even attempted to explain how it takes place.

It might also be argued, that these diseases brought into notice the properties of matter, which had long been dormant in the constitution. It would be inconsistent to assert that such a thing was impossible, but no proof has been, I believe, adduced to support it, and every phenomenon may, I apprehend, be explained without such an admission.

A few authors, who were perhaps aware of the difficulties which I have noticed, in this view of the disease, have endeavoured to account for the symptoms, by obstruction in the glands; occasioned either by the weakness of the convoluted vessels, of which those bodies are said to be composed, or by viscidity of the lymph which passes through them. Amongst those who have advanced these opinions, may be particularized the respectable names of Darwin,[31] White,[32]

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[31] Darwin's *Zoonomia*, I. 2. 3. 21.
[32] White on the Struma. p. 61.

Richerand,[33] and Sheldon.[34] Without entering into a minute inquiry into the merit of these opinions, I beg leave to observe, that as the glands are not composed of convoluted absorbent vessels, the former part of this theory must fall to the ground, and if the obstruction originated in a viscidity of the lymph, the disease should occur most frequently in parts where the largest quantity is passing through them. But as we do not find when obstruction does exist, that the glands become scrofulous; there must be a something superadded to this theory, before it can be accepted.

I have at this time a scrofulous patient, with the glands enlarged from each mas-mastoid process, to the corresponding clavicle, and to the axilla; and from one ramus of the lower jaw to the other. The chain is so continued, that in no part could an intervening pace be found, which would admit of the finger; if obstructions were the cause of

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[33] Richerand's Physiology.
[43] Sheldon's History of the Absorbent System, p. 50, & 51.

these symptoms, is it not natural to expect some mark of œdema? yet there is not the most trifling appearance of it. My opinions on this subject have been proved to be correct, by the learned Professor Soemmerring, who has injected scrofulous glands with quicksilver, and found that the metal passed, with at least equal facility through them, as through others which were not diseased.

If then, neither the origin of the disease, nor the characters which attend it, justify the opinion which has been most frequently entertained of its nature; it may not be useless to inquire, what is the nature of the local actions, which are set up in the part.

The effect of the application of Cold to an animal body, will be proportioned to its degree and duration; if the privation of caloric in the surrounding medium be considerable, or long continued, it disorganizes the animal texture; if it be less violent, re-action ensues, and inflammation is produced.

The extensive connexion which even the favourers of the generally adopted doctrines,

have acknowledged to exist, between the application of cold, and the production of Scrofula; renders it necessary to inquire, if an increased or decreased arterial action, will account for its phenomena.

It might perhaps be a proper subject for investigation, how far an abscess attended with an increased organization, can in any part be produced, by diminished action of the arteries. I shall defer this inquiry until I examine Professor Russell's opinions, and at present extend it only to the relation of symptoms, which would accompany an increase of that power.

It has been observed that these bodies, when irritated, become inflamed, which is attended with a thickening of the cellular membrane in which they are imbedded, with redness and tenderness of the skin, and is followed by a formation of matter. But acute inflammation of the absorbent glands, frequently loses its primary characters, becomes indolent, and assumes every appearance of Scrofula; this is more especially the case, when

measures have been adopted to prevent suppuration, and when those measures have not been persevered in, until the enlargement was entirely removed. This proves that the absorbent system is governed by those laws, which regulate the rest of the animal economy, and that chronic inflammation frequently supervenes upon that which is more acute. If this be allowed, it will follow that slight irritation will produce a more indolent inflammation; and it is almost unnecessary to observe, because the law is universal, that the rapidity of the different stages, depends on the degree of local action, and on the constitutional power.

We may admit then, that the offspring of a weakly parent, will be less able to resist any exciting cause of inflammation; and that the inflammatory action cannot be strong, since there is no power to support it: whilst children, with strong constitutions, are more likely to resist the action of the exciting cause, and the inflammation will possess the characters of phlegmon.

That the progress of Scrofula is graduated, like inflammation, by the local action and the constitutional powers, will, I think, scarcely be denied, by any observing practitioner. The power of reparation also, is in either case dependant on the structure of the part, on the constitutional powers, and on the duration of the diseased action. Now, although Mr. Hunter has spoken of Scrofula as a specific disease, and has denied the existence of inflammation in that complaint, he has almost acknowledged the fallacy of the former opinion, by stating that a "difference of structure, situation, and position of parts in the body, make but little difference in the progress of specific diseases;"[35] and when, in another part of his work, he is describing the characters of inflammation, in weak habits and diseased parts, he appears at the same time, to trace the progress of Scrofula, and to account for its symptoms. "In weak habits and diseased parts, inflammation is slow in any of its salutary effects, and is hardly capable of

[35] On the Blood, p. 223.

either producing the adhesive, or suppurative inflammation; if they should take place, it is but imperfectly, and the surrounding inflamed surfaces are hardly capable of resolution, but continue inflamed"[36]

I fear even Mr. Hunter's accuracy would not enable him to point out such precise limits, between scrofulous affections, and inflammation of these glands, as would certainly distinguish them from each other; neither, if the distinction could be pointed out, would it be attended with the least practical utility. There appears an evident deviation from his generally just conclusions, in this opinion; for he has observed on another occasion, that glands in the internal parts, are never affected by the passage of irritating fluids. How then can we reconcile this law, with a totally different appearance in the characters of Scrofula? we must either account for the deviation, or give up the definition of the complaint.

The relation between simple chronic inflammation and Scrofula, appears further

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[36] On the Blood, p. 231, & 232.

demonstrated, by the exciting causes of the latter disease being such as would excite inflammatory actions; and by the glandular enlargement being formed by an effusion of lymph. It does not appear that any other action than inflammation, can produce an effusion of coagulable lymph, and if this action were not regulated by the common powers of the constitution, or of the vessels in the part, the diseased structure should be modified by it, as in Carcinoma.

It is more necessary to establish these facts, because the contrary opinion leads to a most inefficient practice, for I hear Surgeons who deservedly rank high in the public confidence, speak of the disease "wearing itself out," and who, regulating their practice by this opinion, allow it to pursue its progress uncontrolled.

Mr. Abernethy's acute observation led him to distinguish between a disease of the absorbent glands, which is excited by stimulating fluids, and that which arises from simple irritation. In the latter case he has

found the vessels participating with the action of the diseased gland. Though I have occasionally seen this symptom in scrofulous affections of the joints, I am not satisfied that it is to be discovered when the glands only are affected; for the enlarged glands are generally so near each other, that the finger cannot trace the intermediate vessel. Its absence, however, will not be thought sufficient to controvert the opinions which I have advanced, when it is considered how little any part participates in this enlargement.

This author has observed, with his usual accuracy, in the acute inflammation of these bodies, which is the consequence of simple irritation, that the tumefaction is amongst the first and most striking symptoms; and that there is less disposition to suppuration, than when it is produced by irritating fluids. This fact is of more consequence, since it points out a general law, which a less active inflammation would be expected to follow, and which is strictly observed in Scrofula.

Those authors who have endeavoured to

distinguish inflammation from Scrofula, and who have denied the existence of the former action in the latter disease, have been, I believe, invariably led into confusion. Mr. Hunter's genius could not free him from this error,[36] and the observation is strictly applicable to a much later writer, who has given a description of Scrofula which appears almost contradictory, and which, as he denies the presence of inflammation, is not easily reconcilable.[37] He says a scrofulous enlargement is both "soft" and "firm," is produced "with rapidity," or is "tedious in its formation;" and that it "disappears suddenly" and remains "long indolent." But this apparent contradiction will be very explicable, if we admit that inflammation will produce a "soft" or "firm" swelling as the vessels pour out fluids which are not absorbed, or lymph which becomes organized. In the former case, the re-absorption of the fluid will cause it to "disappear suddenly" and the organization of

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[36] See his Treatise on the Blood, &c. p. 390, to 393, where he has denied the existence of this action, because the process is imperfect.

[37] Russell on Scrofula.

the latter, "to remain long indolent." Again when the abscess bursts, and "lymph" only is let out, what does it prove, but an imperfect suppuration? If "pus" be discharged, the inflammation will have been more vigorous, or the vessels have more readily participated in its formation. When Mr. Russell adds, that "one of the sedative powers of Scrofula has been thought to arise from the weak action of the heart," he probably meant only to imply, that the disease is frequently attended with debility; but he continues, its "nature and tendency is so far more certainly known, that in all respects it produces sedative effects." This however is not peculiar to Scrofula. Every diseased action must "produce, or, tend to produce" a weakness in the function of the part which it occupies, hence there are few disorders which strengthen the system; and when we observe the depression and debility, which accompany active inflammation of the absorbent glands, we shall cease to wonder, that a more indolent enlargement, will produce a like effect. What it loses in degree, it gains

in duration; it is less active but more lasting.

This gentleman's opinions are not less deserving attention from their singularity, than from the high professional rank which the author enjoys. I shall therefore beg leave to quote them.

Scrofula "is the effect of some attack to kill the parts which they invade, this seems to be the case in those affections of the cellular membrane which were described in a former chapter. Portions of the bones too, are apt to lose their life, and to be cast off by the action of the adjacent living parts."

"It would further appear, that certain affections of the lymphatic glands, partake much of the character of death; at least they remain swelled and indurated, without any tendency to subside, and seem to have lost all organic action."[38]

I have previously remarked, that the learned Professor has endeavoured to prove, that these appearances are not produced by inflammation; but if it be admitted, that the exhalent and absorbent vessels act in equilibrium in health,

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[38] Russell on Scrofula, p. 35.

there must be either an increased action of the one set of vessels, or a decreased action of the other, when a part becomes preternaturally enlarged.

That this enlargement is the effect of simple increased organization, and that this could not exist without increased action in the arterial system, is, I think, apparent; for when affected by this disease "the glands exhibit different appearances according to its progress. They are enlarged in their size, and are often somewhat softer to the touch than in a natural state. When cut into, they sometimes shew very much the natural structure, but more frequently they are changed in part, into a white soft curdy matter, and this is not uncommonly mixed with pus."[39]

Professor Russell proceeds, the glands "have not indeed acquired so much of the character of extraneous bodies, as to prove a sufficient source of irritation, to stimulate the adjacent parts to act, in order to remove them. But this circumstance alone is not inconsistent with

[39] Baillie's Morb. Anat. 3rd. Edit. p. 201.

the kind of lifeless state described; for in certain species of gangrene, large portions of the body are deprived of all circulation, become shriveled, hard, black, insensible, and are in every respect dead, excepting that they do not putrefy and separate from the contiguous living parts."[40] What species of gangrene is here meant it is difficult to distinguish, but the illustration appears very unfortunate, since scrofulous glands are neither "shriveled," "black," nor "insensible," they are on the contrary, "swelled and indurated." The latter expression is not strictly correct, because they are rather softer than in their natural state; but they remain vascular, for their vessels are capable of being filled by injection. It is surely a new mode of illustrating the diseases of living parts, to assert that the disease itself "possesses the character of death."

But to give the Professor's theory even the semblance of truth, he should have carried his analogy further, and should have accounted

[40] Russell on Scrofula, p. 35, 36.

for their decrease; for as the enlargement of these bodies is the effect of death, their reduction by resolution, and the resumption of their functions, must be characterized as a return to life. I mention this dilemma into which the pursuit of the Professor's opinions would have led him; because it not only strikingly exemplifies the fallacy of his doctrine; but shews that previously conceived opinions of "scrofulous taint" and scrofulous virus, lead even the first authorities into confusion.

But granting that "portions of bones are apt to lose their life," and that "the cellular membrane does slough away;" Mr. Russell will, I am sure, admit that they possess so small a share of vitality and vascular power, that a trifling increased action will destroy both.[41] These phenomena, therefore, may be explained with reference only to inflammation.

There is another fact connected with Scrofula, which requires to be noticed;

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[41] Hunter on the Venereal Disease, and on the Blood.

because though it has been assigned to other agents, it appears very materially to strengthen the view which I have taken of the complaint. I allude to the disease being more frequent in some of the counties of this kingdom, than in others.

It is a fact very capable of demonstration, that a greater proportion of scrofulous patients seek relief from the Manchester Infirmary, than from almost any other hospital in the kingdom. [42] Out of seven or eight thousand patients who are annually admitted, and receive relief from that institution, almost one half of the surgical cases are scrofulous; whilst in the Nottingham Infirmary there was only one scrofulous patient in sixty-three, on an average of two years. [43] A difference which is equally striking occurs in Liverpool. In a report of upwards of fifteen thousand patients, who were admitted in 1801, into the dispensary of that town,

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[42] The Inhabitants (of Manchester) are peculiarly subject to Scrofulous Swellings. Percival's Med. Ess. vol. i. p. 183. The same fact has been observed in Norfolk. Hamilton on Scrofula.

[43] Dr. Clarke's Medical Report.

only one hundred and forty-two are marked as scrofulous, by the learned and accurate reporter Dr. Bostock.[44] I have no precise data by which I can judge of the comparative number in the adjoining hospitals of Birmingham, Sheffield, Derby, or Leeds; but I believe the disease will be found little more frequent in any of those places, than in Nottingham.

It may not perhaps be easy to account, in a satisfactory manner, for this diversity. Scrofula has been said to arise in some cases from calcareous earth in the water which the inhabitants use, and the Goitre of Switzerland, with the Bronchocele of the mountainous parts of Derbyshire, have been often adduced to prove this statement. But the conclusion has been drawn prematurely, for if calcareous matter be alone adequate to produce Scrofula, we should expect that the inhabitants of Paris would be more afflicted by it than the inhabitants of almost any other place; since it is well known that "the water of the river Seine, with which

[44] In Medical and Physical Journal.

that city is supplied, is so impregnated with calcareous matter as to incrustate, and in a short time choak up, the pipes through which it runs."[45]

Taking for granted, in the absence of positive evidence to the contrary, that Paris is not afflicted in any uncommon degree with this disease, it would appear that a late amible and much lamented Physician has laid too much stress on the impurities of water in Manchester, as an exciting cause to glandular disease. Neither can the presence of calcareous matter in water account for Bronchocele, until it explains why it is a sexual disease. To me it appears to be excited by the same cause which produces enlargement in the absorbent glands, and that cold is frequently that cause. That part of the neck in which the thyroid gland is situated, is in women exposed to every variation of climate, whilst in men it is defended by clothing. I am disinclined to impute the glandular disease in Manchester to the impurity of the water, because there are

[45] Percival's Medical Essays, vol. i. p. 183.

other causes which appear fully adequate to produce it. The children, from a very early period of life, are cooped up in cotton mills where the atmosphere is seldom below 60°; ventilation is not, or cannot be sufficiently attended to; the constitutional powers are thereby much weakened, and the frame rendered less able to resist those effects which the application of any external agent is calculated to produce. To this source of disease may be added their inhabiting damp cellars, and their strong propensity to indulge in the use of spiritous liquors.

Meteorological observations shew, that more rain falls in Manchester, than in most other parts of the kingdom. After the day's confinement in heated rooms, the children are exposed to the cold and wet, they are generally without shoes and stockings, and the rest of their clothing is little calculated to defend them from this sudden transition. Their diet also is poor and meagre, can it then be matter of surprise, if disease should arise in the absorbent system, when we know that exposure

will produce it in parts that are less susceptible, and under less favourable circumstances?

Weavers, who constitute a large portion of the people in the neighbourhood, are much afflicted with Scrofula, the rooms in which they work are damp and cold, and I am inclined to believe that, independently of their vegetable diet, the same cause which operates in the factories, may have its influence here.

Dr. Lamb has attempted[46] to account for Scrofula and other constitutional diseases, from another ingredient in water, which he calls the "septic poison." This consists, according to Dr. L. in arsenicated manganese, and is produced by decomposition of animal and vegetable matter. Are these diseases a natural consequence of its action, if we admit its exsitence? Facts appear to controvert such a supposition.

Man, in a savage state, is almost exempt from these affections; are the stagnant waters of his marshes, more pure than the springs of

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[46] Medical and Experimental Inquiry into Constitutional Diseases, by W. Lamb, M. D.

our own countries? Is there no vegetable decomposition in the trackless wilds which he inhabits? Does he never subsist on food in a putrefactive state?

Whether we consider that this "septic poison," which "putrefaction engenders," renders the body more liable to be acted upon by external agents, "as heat, cold, intemperance, the passions &c," or whether we class it with them as an "exciting cause of disease," like difficulties occur. Dr. L. observes that "in seasons of scarcity and dearness, far greater numbers probably perish from the bad qualities of the provisions, than from absolute want." But do they perish from Cancer, Gout, Consumption, or Scrofula?

In towns where the besieged have not a sufficiency of "stagnant and offensive water;" where "putrid meat, musty bread, and in short, every article of diet approaches to corruption;" and where this "true poison to the human body" would be applied in its most concentrated state, Dr. L. would not expect, or would look in vain for patients afflicted with Gout.

Further, this author observes that "solutions of common salt, present appearances similar to common water." The use of meat prepared with it, is with "him an object of caution, and is at best very suspicious." Are constitutional diseases then amongst the evils most dreaded in long voyages? Dr. L. will not, I am sure, answer in the affirmative.

Dr. L. has produced two or three cases of "pains in the stomach," and of "hot pimply eruptions on the skin," which were relieved by changing the water. But does it follow that "Scrofula, Consumption, Mania, Epilepsy," and a long train of other ills originate in the same source? Dr. L. has not produced a single fact to verify so fanciful an hypothesis, which cannot satisfactorily be explained away.

His method of cure by distilled water is liable to equal objections. Indeed nothing need be urged in support of this assertion, after the following quotation from his book.

"It may be asked whether rain water may not serve as well as distilled water, as it is free from all the fixed principles

of spring water; but I suspect that there are volatile principles which are injurious to the human system, as well as those which are fixed." The inference is obvious, and will, I am sure, be premeditated by a very young reader. If these principles are so volatile, that water, when evaporated at the common temperature of the atmosphere, is impregnated with them, how much more will it be impregnated, when raised to a heat of 212°, as it is obtained by distillation; and how much more noxious will it therefore prove? Dr. L. has not, I believe, the merit of originality. In 1778, a work was published by Dr. Hardy, in which he endeavoured to shew that gout had its origin in metallic impregnation. He mentions arsenic, lead, tin, copper, &c. and his work occasioned a warm controversy.

If, in conclusion then, Scrofula pursues the action of, and is excited by whatever excites chronic inflammation; if it occurs where indolent actions must of necessity be found, and in those situations where inflammation is likely

to be produced; if it arises after debility by whatever cause produced, and varies in degree and duration according to the constitution; I see no reason to call in the aid of a something which is not cognizable to our senses, and cannot be traced by its effects. I am more particularly averse from such a supposition, until it can be shewn, that these bodies are not liable to simple chronic inflammation, and wherein that inflammation differs, from the disease in question.

SECTION VI.

Treatment of Scrofulous Absorbent Glands.

It is often more easy to prevent, than to remedy disease, our attention therefore, should be directed to the general health, and to the removal of any exciting cause of inflammation, in those children whose frames are weak and irritable; for this purpose, exercise, a due use of animal food, a proper attention to the bowels,

and warm clothing are necessary. The exercise should be regulated by the patient's strength, in no case should it be so violent or long continued, as to occasion excessive fatigue, because debility is as certainly produced by fatigue, as by the stimulus of wine. The child should be allowed a moderate quantity of animal food once a day, the quantity must be regulated by the appetite, and by the powers of digestion. Puddings, milk, rice and other farinaceous matter, ought to constitute the remainder of his diet, and hot slopping liquors should be entirely abstained from.

It will generally be found necessary to allot a considerable portion of time for sleep, to children who are in danger of Scrofula. But their covering should be slight, and night and morning perspirations must be avoided, or immediately checked. The shower bath should be used, provided no pulmonic affection contravene. I prefer the shower to general bathing, because children will generally bear a greater degree of cold when thus applied, than when immersed in the water. The

temperature of the water should be regulated by the constitutional powers, in no case ought the cold to be so great, or so long continued, as to produce its directly sedative effects. It must be sufficient only to excite a glow over the whole frame, and should be regulated by this re-action. The child must be rubbed dry with rough cloths, and the friction will be still more advantageous if continued a quarter or half an hour.

If the weather be cold, or the child debilitated, a flannel dress may be thrown on; but on no account should the friction be omitted. Flannel constitutes an article of dress which is indispensible, it should constantly be worn next the skin, and if the weather be unsteady, or so cold that the child is unable to counteract its effects, a fur of any description may be worn round the neck. This is the more necessary if an enlarged gland have already appeared. A hare's skin fastened to the night-cap and fitted to the part, may be substituted in the night, and worn with the fur side in contact with the skin. By

these means we shall not only be more likely to promote the discussion of the tumour, but prevent the enlargement of other glands by the removal of at least one powerful exciting cause.

Cooling washes, and the early and frequent application of leeches, must be combined with this general treatment. The washes must not be of so low a temperature as to induce shivering, or to produce a cold; as it is by their continued use that they will take off the disposition to enlargement. The patient will not bear the loss of much blood, but we must consider that the advancement of the disease, and the long continued ulceration, will occasion much greater debility than the local blood letting; and it is the frequent application of this remedy, not its excessive adoption at one time, which I am anxious to inculcate. I wish it merely to relieve the indolently increased action, which attends the enlargement of the gland. This mode of treatment will produce a slow, but lasting effect, whilst more violent methods will weaken or derange the constitution, and

render it more liable to be acted upon by exciting causes. The bowels must be kept solvent rather than loose, but where there is sufficient power, an occasional and gentle purgative will do good, by producing a determination to other parts. Calomel is frequently administered for this purpose, but rhubarb will answer equally well, and will not only stimulate, but strengthen the bowels.

Though these means have been persevered in until the inflammatory action be subdued, the tumour will scarcely be decreased in size. In the commencement it is generally built up of effused lymph, which sometimes becomes organized before the Surgeon has been consulted, or before the means which he has used have had the desired effect. But whenever we are assured that the tendency to enlargement is removed, a fresh mode of treatment should be adopted; we must now by stimulating applications promote the absorption of the tumour, care being taken that re-action is not produced.

It is perhaps of little consequence what

cooling washes are made use of, since they have an almost equal tendency to decrease arterial action by evaporation. When the progress of the tumour is arrested, it may be necessary, and is at least safe, to render the application more stimulating, so that whilst evaporation is continued, a gentle stimulus may be kept upon the surface; and this stimulus may be gradually increased as the parts are able to support it. To accomplish these ends, I apply a solution of the sulphate of zinc, and increase its strength from half a dram to a dram and a half of the salt, in eight ounces of water. Friction with the volatile or camphor liniment, combined with mercurial ointment, must then be regularly used; or, if the tumour be conveniently situated, an issue or seton may be inserted over it: a blister is perhaps more useful, if kept open by the savine cerate.

Friction with the bare hand is recommended by Mr. Grosvenor of Oxford, and if persevered in, is of singular utility. My practice has fully justified the encomiums which have been bestowed on this remedy, and I

should generally prefer it to the application of stimulating liniments, which soon abrade the surface of the cuticle, and render a continuance of the friction impossible. But the practitioner will often have much difficulty in prevailing upon his patient to use the friction to a sufficient extent.

Electricity, as a means of promoting absorption should not be passed over, for in some instances it is strikingly beneficial; but the adoption of these remedies in individual cases, must be left to the judgment of the practitioner, and needs not therefore be further insisted on.

The progress of the tumour must be carefully observed, and if a disposition to enlargement appear, the stimulating plan should immediately be discontinued. In very irritable habits, this will be found particularly teasing, and the recurrence to leeches frequently necessary to prevent it. I have continued the application of cooling washes to the part, after the friction, and I believe it will frequently be found to render these cases less troublesome.

In the use of cooling washes, I have uniformly been governed by the principle of subduing the increased arterial action, and of regulating the temperature of the part, not of reducing it below the healthy standard. The use of them will not therefore be found inconsistent with the directions which have been given respecting clothing. In weak constitutions, warm coverings should be worn over whatever cooling applications are made use of, for a rapid evaporation does manifest injury, by deranging the constitution.

If the cold which is produced by evaporation be very considerable, it will destroy the power of the part; the skin will assume a livid redness, which the Surgeon may mistake if he do not attend to the temperature, for an increase of inflammation; and by persevering in the means of reducing it he will cause the parts to slough away. This appearance, and these effects, may easily be produced in weak habits, if the glandular enlargement be considerable.

When the practitioner has recource to

stimulating applications, his efforts will be much assisted by the exhibition of small doses of calomel, every night and morning. If the bowels be irritable, a grain or two of the extractum conii may be combined with it, and if the appetite be defective, three or four grains of carbonate of iron may be given also.

To prevent salivation, and to increase the effect of the mineral, its use may be occasionally omitted a few days; or a purgative may be added to it. Where the habit is weakly, and the bowels irritable and loose, the former means should be adopted; but where the constitution is naturally good, the use of an occasional purgative can seldom do harm, and will often be materially useful.

By persevering in the practice which I have pointed out, and by regulating the constitution of the patient, I feel confident that a Surgeon has means in his power which are fully adequate, in most cases, to produce the resolution of these tumours.

Too much attention however, I repeat, cannot be paid to the history and progress of

the disease, for the glands have so little sensation that the Surgeon will have occasion for all his powers of discrimination, to enable him to judge of the propriety of discontinuing the sedative, or adopting the stimulating modes of treatment.

The practitioner will not be discouraged, though pus be effused, and an abscess formed; since, by attending to the general health, he will not be a loser by a protraction of the local complaint, he will rather have greater power of subduing it as the strength increases. Cooling applications, and leeches, must be again resorted to, until the inflammatory action subsides, when we must recur to the use of friction, stimuli, &c. and if the swelling be situated in a part which will admit of it, pressure will be found most useful.

Should the abscess increase, notwithstanding our efforts to prevent it, the glandular swelling with which it is accompanied, will regulate its future treatment. When it is formed of simple effusion, and is uncombined with enlargement in the gland, or when

that enlargement is not considerable; the most beneficial practice will be, I believe, to evacuate the matter: for if we wait until the skin be ulcerated, the cellular membrane, having been so long exposed to diseased action, will ulcerate or slough, and the death of the skin must inevitably follow.

As soon as we are convinced that the abscess will continue to enlarge, it appears proper to puncture it, because the adhesions by which its boundaries are circumscribed are so slight, that a trifling pressure destroys them. The abscess extends laterally therefore, instead of approaching the surface, and as the whole cavity sloughs on exposure, the isolation and death of the skin, and the size of the ulcer, will be proportioned to these circumstances.

I have already noticed the action which appears an effort to retain life in the skin. Perhaps I might have added, that this effort rather facilitates its destruction, since however trifling it may be, it is greatly beyond its powers to regulate. The death of the cutis

proceeds slowly, but as no cicatrization can take place, until the healthy portion is separated from that which is diseased; and as few granulations will rise, where there is an inflammatory action; the importance of preserving the skin by an early evacuation of the abscess, need not be further urged.

CASE.

A young man twenty two years of age, had a small abscess immediately above the sternum, which had existed some weeks, and gave him no pain. There was little thickening in its base, and no glandular enlargement. After leeches and cold washes, an ammoniacal epithem was applied; but the young man's affairs called him into another part of the country, and upon his return, at the expiration of three months, the abscess had burst, and its base reached entirely across the sternum. The discharge was considerable, the whole of the cavity inflamed and sloughed, and the skin died; the ulcer was consequently very large, and the restoration of the lost parts tedious. At the end of a year, it was not entirely

healed. Had this abscess been opened at a more early period, it is evident that the sore could not have been so large, because the ulceration would not have extended beyond the diseased portion of skin.

By an adherence to this practice a further and more important advantage may be obtained, I mean the prevention of ulceration in the cavity of the abscess, and its obliteration by adhesion. Because, though I believe inflammation exists in every period of the disease, yet it cannot be denied that it becomes more considerable as the ulcerative action is more extended. In proportion to the inflammation, is the chance of destruction in the cellular membrane; the matter should therefore be evacuated before this increased action has taken place, and whilst the cells retain sufficient vigour to support their life, and to produce re-union. It is true that in whatever manner, or at whatever time, the abscess is opened, ulceration will follow; but if the inflammation has not been considerable, it may generally be prevented from increasing, by continuing

the cold applications, after the abscess is evacuated.

I know not what opinion may be formed of this theory, but the benefit of the practice, I have often witnessed, and I can therefore confidently recommend it. An abscess, which if allowed to ulcerate would occupy many weeks or months, may by this treatment be obliterated in a few days. It is not perhaps easy to account for the difference in the effect of the same application, when applied to an abscess with the skin entire, and to the cellular substance, in which the abscess is formed: in the one case, it shall not arrest its progress; in the other, the discharge will immediately cease.

My first trial of this treatment was in a girl about twelve years of age, who had a small abscess between the metacarpal bones of the little and ring finger, on the back of the hand. It had been preceded by inflammation, to which cold washes were applied, and when the abscess had approached the skin, it was punctured; the cold stupes

were continued, and in three days the abscess was obliterated.

CASE.

I was in attendance on a young woman, the daughter of T* * * * * * * * * * who had many years been suffering under glandular disease, the remains of which were visible on the arms and neck, and in the axilla. During the last year, she had an abscess formed over the tibia, which was followed by disease in the knee, and by a large collection of matter under the fascia of the thigh. She had night sweats and diarrhœa, and a troublesome cough, with expectoration. Her appetite was defective, and she had much pain.

In addition to these distressing complaints, an abscess formed on the upper edge of the pectoral muscle, and below the clavicle. As there was some inflammation on the skin, cold applications were used, notwithstanding the existence of cough, and of pain under the abscess, on deep inspiration. The progress of the disease was not materially impeded, and

when it began to point, four ounces of pus were evacuated through a small opening, and the cold applications were continued. On the second day, there was very little discharge, and on the fourth, the puncture was healed, and the abscess obliterated.

CASE.

A boy, about five years of age, had a glandular swelling on the left side of the neck, with a collection of pus exterior to it. I punctured the abscess, and allowed the orifice to remain open, so that its contents could easily be discharged. Cold stupes were applied, and in a few days, the walls of the abscess had united by adhesion, leaving the gland somewhat larger than an almond, but perfectly moveable, and without pain. This boy had tenderness in the eyes, the meibomean glands were ulcerated, he was costive, and his appetite was defective. After a brisk purgative, he took three grains of the sub-carbonate of iron, twice a day; a stimulating ointment was applied to the eye-lids, and by the continuance of the cold application to the

gland, assisted with occasional and gentle friction, his complaints disappeared.

I have hitherto considered that the scrofulous ulceration is less manageable, than the ulceration which follows a phlegmonous action, because there is little constitutional power. Whether this opinion be correct, it is perhaps of little consequence to decide, if, as these cases appear to shew, we may almost certainly prevent the inflammation which follows the exposure of the cavity.

It was with this view that I continued the cold applications, and I attributed the complete command which they appeared to possess over these actions, to their frigorific quality: but that other circumstances are necessary, will now, I think, be fully shewn.

CASE.

T * * * * * of Chapel-field, applied to me on account of two swellings, one of which was situated beneath the left submaxillary gland, the other on the edge of the sterno-cleido-mastoideus muscle; the former consisted of coagulable lymph, which had been effused into the interstices

of the part; the latter was an abscess without glandular enlargement. Leeches and cold applications were used, but as the disease had existed several years, and as there was little tenderness, the remedies were changed for friction with stimulating embrocations. By these means, the submaxillary absorbent gland gradually, but progressively, decreased; whilst the jugular swelling extended laterally, and a tenderness was complained of, on pressure. The fluctuation became more perceptible, and when the abscess appeared disposed to point, it was opened, and about two ounces of healthy looking pus were evacuated. Wishing to try whether cold applications would prevent it from filling again, I closed the puncture by adhesive plaster, and applied stupes over it wet with a diluted solution of the acetite of lead. At the end of three days, the skin covering the abscess had become inflamed, the patient complained of much pain and tenderness, the abscess had filled again, and in taking off the plaster, pus issued forth with great violence. The orifice appeared disposed to ulcerate,

and its lips were inflamed. The plaster was not re-applied, and the patient was desired to be particularly attentive to keep the cloths moistened. This treatment was followed with great abatement of the pain, and of the inflammation on the skin; and the discharge decreased, though it was yet considerable.

Disappointed in my expectations of procuring immediate adhesion, for this was the first case in which my expectations had been too sanguine, I was anxious to ascertain the cause, and felt disposed to account for the failure, in the neglect of my patient; but his anxiety for relief, and his assertions to the contrary, entirely removed this impression. In despair, and without any other expectation than having to witness a long, tedious, and disgusting process, I substituted a solution of the zinci sulphas for the lotion he had hitherto used. The effect was admirable. In about a week the abscess was entirely obliterated by adhesion, and not the least vestige remained, except a little thickening around the puncture, where it had united with the platisma myhoides.

These cases might easily be extended but it appears to me unnecessary. Where I have endeavoured to attain this object, I have used the sulphate of zinc in solution, and I am so confident of its success, that I should consider a Surgeon unpardonable who had an extensive scar from this species of scrofulous abscess.

That I may not appear to over-rate this treatment, I shall beg leave to relate the cases in which it has failed.

CASE.

I was consulted by a Gentleman for an enlarged absorbent gland, situated under the sub-lingual gland. He had extensive scars below each ear, and had been occasionally afflicted with scrofulous complaints from a very early period in life. There was considerably more redness on the skin than is usual in these cases, but it was probably produced by a plaster he had been using. An abscess had formed, but the integuments were thick; there was also some puckering. The usual means of removing it were ineffectual, but it did not approach the

surface; the man became impatient, and was anxious to have it punctured. After a week's application of a poultice, I complied with his request, and discharged nearly half an ounce of a serous fluid. A solution of the sulphate of zinc was applied, but the orifice became fistulous; poultices were again used, and after a very considerable time the wound healed.

When the sac of the abscess is very insensible, as when the pus is contained under a fascial sheath, it will be tedious in approaching the surface, and if the Surgeon do not puncture it, its lateral extension will be very considerable. In these cases, the application will not produce adhesion, and the abscess will again be filled.

CASE.

A young woman, aged twenty-one years, had applied to a Surgeon in Manchester, for a scrofulous abscess under the chin, which was allowed to ulcerate, and the practitioner gave her a certificate as a proper object for a sea-bathing charity. I was desired to visit her

by a lady in the neighbourhood, to whom she had applied for this purpose.

Besides the ulcer near the lower jaw, she had an extensive abscess, which covered the whole of the infra-spinatus muscle, and extended to the margin of the axilla. I evacuated it, and discharged about four ounces of a thin serous fluid, mixed with large flakes of curd. Several of these coagula remained within the cavity, and gave a peculiar sensation to the finger. The sulphate of zinc was applied in solution, the aperture healed, but the abscess filled, and its contents were repeatedly discharged.

An ointment of tartarized antimony was well rubbed upon the surface, but though it excited considerable irritation, the contents of the abscess were not at all reduced, nor did it approach the surface. On being again punctured, a strong solution of the sulphate of zinc was injected into it, and retained about ten minutes. It excited little uneasiness, and the parts united by adhesion.

But even in these cases, the practice will be successful, if a little more active inflammation

have attended the formation of matter, than generally exists with Scrofula.

CASE.

A young woman, eighteen years of age, had an attack of inflammation of the thigh. Her pain was deep seated, the limb was much swollen, the skin was glazed, but not much discoloured. A fluctuation was perceptible, though the tenderness was so great that she could scarcely bear it to be touched. Fomentations were applied, which relieved her pain; the tenderness abated, and the fluctuation became more evident.

I punctured the abscess, and discharged about ten ounces of healthy looking pus; the orifice was left open, and in the course of the day about four ounces more flowed from it.

A cold solution of the zinc. sulph. was kept upon the part.

The discharge continued the next day, but no inflammation had come on, the limb had been much easier, the aperture shewed no disposition to ulcerate. To continue the lotion.

Fourth day, I visited her, and found her

able to walk. The opening had united by adhesion, though a small quantity of pus remained in the cavity of the abscess, which a stimulating embrocation, with a roller applied round the thigh, speedily removed.

When a different treatment has been adopted, and the abscess allowed to burst; the skin which covered it will participate in the disease, and will die when the cellular membrane is destroyed. It is yet the duty of the practitioner to save as large a portion of this skin as is practicable, and if possible restore it to its healthy action. If the ulcerated point become closed, and the cavity of the abscess fill again, it is necessary to re-open it, or an ulcer will be formed on another part of its surface, and the skin will have less chance of regaining its lost powers, than if it had remained open, and had ulcerated only on one point. It will in either case die, rather from being deprived of blood, than from too great an action; and the circumscribed red line, which is always observed at some distance around the ulcer, serves rather to denote the point of separation

between the healthy and diseased skin, than of inflammation.

If the disease be not arrested, ere it attain this point, the Surgeon must too often have the mortification of witnessing its progress of death, separation and reproduction; all of which are tedious in being accomplished, in consequence of the want of action, or of power to support it: and I may, I hope, be allowed to urge these considerations more strongly, since it appears to me easy to prevent such an occurrence from taking place. When the sore is irritable, and the ulceration somewhat rapid, an aqueous solution of opium, or of hemlock, should be applied, till the disposition be removed. A small quantity of spirit may be gradually added, to render the application more stimulating, and the sulphate of zinc, or of any other metallic salt, afterwards substituted.

When the diseased skin has separated, and the sore has put on its indolent character, with a slough perhaps covering its surface; solutions of the neutral or metallic salts, as of the

muriate of ammonia, oxy-muriate of mercury, nitrate of silver, or the sulphate of zinc, will stimulate the ulcer to shoot forth granulations; and the strength of these applications should be gradually increased, as the ulcer is accustomed to the stimulus. In other cases, the local application of calomel in lime water, will be found useful; but care must be taken, lest it convert the ulcer, into an irritable and spreading sore.

Sorrel, has been noticed as a remedy for scrofulous ulcers, but like many other applications it has fallen into disrepute, chiefly perhaps for want of sufficient data. Where the granulations rise above the surface, and are broad and flabby, and where pressure cannot be applied, the sorrel poultice will often repress them; and when it cannot be obtained, lemon juice in water will have a similar effect. But both these remedies must be discontinued, when this event has been obtained.

Salt water, is another remedy which has obtained much celebrity, and is universally

applied. Yet many practitioners will, I believe, confess their disappointment, and will have found some instances where the patient returned from the sea, with the ulcers extended. Indeed, where the habit is very irritable, an ulcer which has been some months healed, will have the cicatrix become open, and will continue to ulcerate, until the patient is removed from the sea shore. It would be presumptuous in me to point out the cases which alone are likely to be benefited by this remedy; but when the skin is ulcerating, or when any other portion of the sore is in an irritable state, I should expect little benefit from the application of sea water, and should not recommend it, except the advantage to the general health, would more than counterbalance the injury which the local disease would, in my opinion, be likely to sustain.

The common principles of treating these complaints can here of course only be insisted on. Their shades of difference vary to an infinite degree, and no general description will convey to the mind, an accurate idea of

individual cases. My wish is to call the attention of those practitioners to the local appearance of the sore, whose opportunities of observation are more extensive, and whose knowledge of disease is more accurate than my own. I wish it merely to be understood that the principles which regulate our treatment of other ulcers, should be applied here, and should be directed with increased accuracy of observation.

In attempting to form a mode of treating scrofulous ulcers, by analyzing the symptoms, and by directing the attention of Surgeons to a more strict examination of their progress and appearance; I am, I think, pointing out the most certain index by which their practice can be regulated. It is, at least, more philosophical than to search after, what appears not likely to be found, a remedy which will be equally efficacious whatever may be the characters of the disease. But the progress of the disease is an index not only of the local action, but it is a test of the constitution also; it is one at least, and not an

unimportant one, amongst other symptoms, by which the bodily disposition will be ascertained.

If an abscess is combined with considerable enlargement of the gland, I have occasionally punctured it, and applied the zinc lotion. When the disease is very slow, this temporary relief from the distension, has arrested its progress, and the aperture has united; and in others I have thought the ulcer less extensive, and more uniform, than it otherwise would have been: but again I have been disappointed, and have found the lateral extent of the abscess depend on the size of the gland, and on the actions which attend it; and that we have less control over, and less power of reducing the latter symptom, when an ulcer is formed. On the whole therefore, this treatment will be of the least use, when the gland is largest; and we may resort to its adoption with most confidence, where enlargement constitutes the least prominent feature. In the gradation between these extremes, the case must be regulated by the judgment of the practitioner.

In the second species of scrofulous affection, there is simply an enlargement of the gland, and we find the disease less rapid, because a part which has become organized, excites less irritation, than the contents of the abscess.

The treatment will vary little in its early stages, from that which has been already recommended; as the subtraction of blood and heat, are the principal means to be resorted to, in reducing increased actions. But the greater indolence which exists in the action of this species of the disease, will authorize a more early adoption of friction with stimulating liniments, particularly if cold applications be kept upon the part when the friction is discontinued. When the disease has existed a considerable time, without producing inflammation on the skin, the Surgeon may resort to this treatment as soon as he is consulted.

If the skin participate in the actions of the diseased gland, leeches must be frequently applied upon, or in the vicinity of the gland, and combined with cooling washes until it

is removed; when blisters, friction and electricity, should be substituted. These cases generally terminate well, but are tedious in being resolved, especially where the lymph has become organized. The only caution which it appears necessary to give, is to prevent re-action from taking place. When an ulcer is formed, it must be treated on the principles which have been already pointed out.

I have only seen one case where an abscess was contained in the substance of the gland, constituting what I have considered the third species of glandular affection; and it so rarely occurs, that it seems almost unnecessary to speak of its treatment; as it consists only in the proper combination of the refrigerant and stimulating applications. I am not able to determine what difference will be produced in the ulcer.

In attempting to form some criterion, by which the constitutional treatment may be conducted, it will not be expected that I should dwell with minuteness on any article as a specific. I despair of seeing such a remedy, first,

because no medicine can prevent the absorbent glands from becoming inflamed; and secondly, because it appears inconsistent to expect the same remedy, or the same mode of treatment, will be equally beneficial to an ulcer with its surface covered with a slough, and with its base and edge thickened; and to another which is so irritable that it spreads in every direction.

The only specific which I have seen extensively given, is the muriate of lime. I can say little in its praise, for I think in at least one hundred cases, I was not able to distinguish one which amended from the use of it, where the amendment could not otherwise be satisfactorily explained.

The mineral which is a specific in syphilis, gives to the constitution, or to the vessels of the part, the power of absorbing the thickened edge and base, which is characteristic of that ulcer; but who would venture to give it to the same extent in those cases of phagadæna which Dr. Adams has noticed, or in some of the sores which have been so accurately

described by Mr. Abernethy? The almost unvaried success with which the judicious exhibition of this remedy is attended, in the disease alluded to, has led practitioners to give it in Scrofula; and it has been as extravagantly and injudiciously extolled as a specific on the one hand, as it is unjustly depreciated on the other.

In the early stage of scrofulous complaints, the exhibition of mercury will uniformly do harm, and it should be most strictly abstained from, where the disease is most rapid; but when the disposition to enlargement is removed, and when stimulating liniments, friction or blisters, produce no re-action, mercurial medicines may be given with great advantage, and will facilitate the absorption of the tumour.

Where the disease has produced inflammation on the skin, similar cautions are necessary to be observed, as every preparation of mercury would increase the irritation. But when this symptom is removed, mercury may be resorted to with confidence; though salivation must be carefully prevented from taking place.

I would advise the early opening of scrofulous abscesses, because if the result of the after treatment, which I have recommended, should not be complete, it will at any rate prevent the sloughs from being so extensive as they would otherwise have been: and where the re-production of lost parts is so difficult to be effected, the utmost attention should be directed to preserve them.

Besides, where the disease has long existed, and is kept up by habit, one part of the ulcerated surface will be covered by granulations, and another portion covered with a slough, whilst the skin is gradually ulcerating. No application can be equally beneficial to these different stages, and much time will pass away in attaining one uniform character in the sore.

When, as in this case, the skin and cellular membrane are under the influence of a disease which they have no power to support, mercurial preparations would be highly injurious; but when the irritable actions are removed, and a slough only covers the ulcer,

they will be again admissible, though we cannot be too cautious that the mineral is not pushed further, or continued longer, than is necessary to remove the cause for which it was exhibited. Indeed, it cannot be denied that it is frequently necessary to discontinue it, and soothe the ulcer, before this desirable event has taken place; after which the mineral may be administered, and combined with other remedies which tend to strengthen the frame, and decrease its irritable actions.

Ulceration appears a process instituted by nature to remove those substances which would otherwise die; every ulcerated surface has therefore undergone a degree of action, disproportionate to its strength, and is necessarily weakened by it. But weak parts are also irritable. These properties are, I believe, in a direct ratio with each other, and on this pivot the phenomena of scrofulous ulcers appear to hang. If we allow them, they remain indolent; if we excite them, they become irritable; and this irritability is the more teasing, since there is no constitutional power to subdue,

or even to regulate it. These facts, if I may be allowed to call them such, should, I think, be borne in mind, in the exhibition of this remedy in scrofulous complaints, as they direct us to the cause of so much contradictory testimony, and teach us how to avoid it.

Whilst the burrowing disposition continues in the ulcer, every preparation of mercury must be carefully abstained from, and must be re-commenced with great caution after it is subdued. For the cellular membrane underneath the skin, has been kept in quiescence merely by the prevention of inflammation; and as mercury will act upon it more powerfully, than upon the substance of the gland, the effect will be produced, which I have observed should be most anxiously avoided, ——the subsequent death of the skin, and the spreading of the ulcer.

Mr. Abernethy employs calomel as a constitutional remedy in scrofulous complaints; his success may be estimated from his own words. "I have remarked in many instances diseases of the absorbent glands which are

usually and justly denominated scrofulous, occurring in adults." "In several cases, the local disease was of long duration, and had become worse rather than better, under various plans of treatment, yet it amended regularly, and sometimes even speedily, in proportion as the digestive organs were corrected."[1]

"I have also seen instances of sores apparently scrofulous, left after the suppuration and ulceration of diseased glands, which had continued for more than a year, heal rapidly under the same kind of treatment. I have however seen other instances, in which the sores did not appear to be mended by such constitutional treatment."[2]

I think it may be inferred where these constitutional means were of service, that the ulcers had acquired their characteristic indolence; their long duration at least, appears to authorize this conclusion, since they could not, I conceive, continue so long in an irritable state. This then, would be the most

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[1] Surgical Works, vol. i. p. 154.
[2] Ibid. p. 164.

favourable time for the exhibition of calomel, and its good effects were apparent. Though no opinion of this very excellent Surgeon ought to be slighted, I beg leave to observe, that he has given us no data by which we may exhibit calomel in this disease, except derangement of the digestive organs; whilst he admits, with his usual candour, that in some cases this is not a sufficient guide, and that attention to other appearances is therefore necessary.

Mr. Abernethy believes that enlargement of scrofulous glands, is frequently caused by irritation in the stomach; Mr. Carmichael is also of this opinion, and gives some cases to illustrate it:[3] but as this view of the subject, if correct, does not lead to a practice which is applicable to all cases, and as it does not point out any means of selecting those which are most proper, I shall not, I hope, be thought presumptuous, in having taken another view of the subject, which appears to me, equally scientific and successful.

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[3] Essay on the Nature of Scrofula.

The attention of practitioners was directed to the efficacy of cinchona bark, in scrofulous complaints, by Drs. Fordyce and Fothergill, in the Medical Observations and Inquiries. It is generally and extensively given, and though far from being a specific, its exhibition is often attended with beneficial consequences.

In the early stages of the disease, this medicine will have little effect, and can be given only with advantage, where the appetite is defective, and the power of the stomach impaired. By restoring this organ to a proper tone, it gives strength to the system, and enables the practitioner to adopt a more active local practice, than he would otherwise be enabled to use. But, when the disease is protracted, when ulceration has taken place, and especially when the diseased skin is thrown off, and the wound is covered with a slough, or is filled with granulations which are broad, pale, and flabby; the bark will often give immediate strength to their actions,

and should be exhibited in as large quantities as the patient can bear.

In very irritable habits, granulations will shoot forth, which, though rounder and paler than is desirable, give reason to believe that the sore will soon heal. If the Surgeon give bark in considerable quantity, it will disorder the bowels, and the granulations will on a sudden be destroyed, leaving the ulcer of a greenish colour, with perhaps one or two points of granulation sprouting from its surface. This will sometimes happen without any perceptible cause and is particularly to be dreaded, if mercurial preparations be injudiciously given.

When Bark has been long administered, it loses its effect, in which case preparations of iron, or of arsenic, may be combined with, or substituted for it; but metallic preparations too often disorder the bowels. The sulphuric, and other mineral acids are also useful, if the patient have thirst, night-sweats, or febrile paroxysms.

A generous and nutritious diet, is useful in

every stage of Scrofula, but it is particularly necessary when the lost parts are to be restored. This truth could not be more strongly verified than it has been in the manufacturing poor in this part of Lancashire, during the late high price of provisions, and depressed state of commerce. In almost every case, where an ulcer was formed, whether from accident or disease, the healing process has been slow, and in many instances obstinate, from the want of a proper supply of animal food; whilst cicatrization has become rapid under the same local treatment, if the patient got admittance into a neighbouring infirmary, where the diet is sufficiently nutritious.

Cicuta, (conium maculatum) was recommended by Dr, Stork of Vienna, as a remedy in Scrofula ; but it has fallen into comparative disuse, for practitioners in this country, have by no means found it to deserve the celebrity which it attained, in consequence of being recommended by this respectable physician. It is however an useful auxiliary to other medicines, and will often prevent them from

disturbing the functions of the stomach and bowels. In cases of great irritation, it may be given alone, but it is perhaps more useful to combine it with calomel, or preparations of iron, when either of those remedies is indicated.

I have already observed, and the fact cannot, I think, be too frequently repeated, or too strongly enforced, that every scrofulous ulcer requires the greatest attention, and the most accurate discrimination. It is necessary to keep in view, at the same time, the state of the gland, of the cellular membrane which surrounds, and of the skin which covers it; for though each of these parts has different powers of resisting disease, and of recovering from its effects, they are as mutually dependant on, and as certainly affected by each other, as the integuments of the head are affected by disease of the cranium, or of the dura-mater. I urge these considerations more strenuously, because a search after specifics has almost universally superseded this attention; and because the disease may not only be

simplified, but, as it appears to me, controlled, by adopting the practice which I have ventured to recommend.

But, when several enlargements exist, or when several ulcers have been formed, and are in different stages of their course, it requires few arguments to prove, that almost every application will be injurious to one, exactly in the same ratio that it will be beneficial to another. We must either check the progress of those ulcers which are disposed to heal, until others which are irritable have become inactive, and until the glands which are enlarged have ceased to increase; or we must allow the most favourable to pursue their progress, and palliate the remainder until cicatrization is secured.

SURGICAL CASES,

WITH

PRACTICAL REMARKS.

CASE

OF

INGUINAL ANEURISM.*

IN the beginning of June 1811, I was consulted by John Ramwell, a stout muscular man, of a spare habit of body, a florid complexion, and about forty-one years of age. In 1808, he perceived a swelling, not much larger than a pea, on the inside of the right thigh. It caused very little pain or inconvenience, and did not increase so as to alarm him, till after his recovery from a severe dysentery, nine months before I saw him. From that period its increase was rapid. It had now

* Re-published from the Edinburgh Medical and Surgical Journal.

attained the size and shape of a pint basin, with its rim inverted; although six months before, it was not, by the patient's report, more than one-fourth of its present size. The tumour was situated on the superior anterior part of the thigh, extending along Poupart's ligament, to within two inches of the anterior superior spine of the ilium, and about four inches down the thigh. It was dense, circumscribed, and appeared to sink deep amongst the muscles. If grasped firmly, a dull pulsatory motion was clearly distinguishable; this pulsation was rendered more evident by bending the thigh upon the pelvis, and by a continuance of the pressure, the swelling became much less prominent. The artery passed along its most interior surface, and gave to the finger the peculiar thrill characteristic of aneurism. It retained this character, till it passed through the adductor femoris to descend into the ham, when it was no longer to be traced.

A bread baker by trade, the patient had been occasionally accustomed to great exertion,

in carrying loads of flour up several sets of stairs. But his employment, during the last seven years, had been chiefly performed in a sitting posture, and required little bodily effort. When I apprized him of the necessity of an operation, I learnt that he had already consulted two Surgeons, one of whom had advised the removal of the tumour by extirpation, the other had recommended the frequent application of blisters to it. This diversity of opinion was attended with a proportionate want of confidence in my patient, which induced him to defer the operation; and as his pulse was good, his appetite tolerable, his bowels regular, and his health little impaired, I gave him general directions, and desired to see him again in a short time.

At the end of a fortnight the swelling was somewhat larger. It produced a numbness in the thigh, and the leg towards evening began to swell. A troublesome cough now came on, which, with a few days hard labour, produced a more rapid increase. My friend and late master, Mr. Killer of Manchester,

who with my friend Mr. Hamilton, did me the favour to examine my patient, entirely coincided with me in opinion, and the operation was consented to, when the cough was remedied. For this purpose, opium with digitalis was administered, and rest, low diet, and occasional laxative medicines recommended.

From this period to the latter end of July, the tumour had increased so rapidly, that it was thought advisable to delay the operation no longer, though some cough still remained, and though the temperature of the atmosphere was oppressive. It was accordingly performed on Tuesday the 28th. of July, in the presence of Messrs Killer and Hamilton, whose very friendly attention on this and every other occasion, I have great pleasure in acknowledging.

I made an incision upwards of three inches in length through the integuments, beginning at the upper margin of the tumour, about three inches from the symphysis of the pubis, and carried it almost directly upwards. In the dissection of the cellular membrane which covers the aponeurosis of the external oblique

muscle, several arteries were divided, which supply the adjacent glands. These vessels were immediately secured, and more than two inches of the tendinous expansion was exposed. I carefully divided its fibres, and dilated the opening downwards, by the probe-pointed bistoury introduced upon the finger. The artery was now clearly distinguished by its pulsation. The fibres of the external oblique, with the margin of the internal and transversalis muscles, were also divided upwards, to allow sufficient space for the two fore fingers of the left hand to be placed in contact with the arterial sheath.

I endeavoured to detach the fascia, so as to be enabled to pass my finger round the artery, and met with considerable difficulty in the attempt. But, by keeping the vessel firmly in its situation upon the psoas muscle, with my finger and thumb in contact with it, I succeeded in passing the eyed end of a probe, about half an inch of which was bent to a right angle, under the artery, from within outwards. The shaft of the probe was likewise

gradually bent, to facilitate its turning in the wound; and when this was accomplished, a double ligature being put through the eye, the probe was re-drawn. The upper ligature was tied as high as possible by Mr. Killer——the pulsation in the tumour immediately ceased. The lower ligature was also tied, but as the space between them did not appear to warrant the division of the vessel, it was left entire. The integuments were brought into contact, and secured by a couple of stitches; stripes of adhesive plaster were applied, with a roller round the whole, and the patient was put to bed with the thigh bent upon the pelvis. The temperature of the limb had been kept up during the operation, by a flannel roller applied around it, which was still retained; the whole limb felt comfortably warm, and he had little pain. At nine o'clock in the evening, I found his skin cool, tongue somewhat furred, pulse 100, wound easy. The leg and thigh were quite as warm as on the opposite side, foot a little colder. He had had a few short slumbers,

and had taken bread, butter-milk, and tea. To take an opiate at bed time.

Wednesday, seven A. M.---He complained of much pain in the back, occasioned by continuing in the same position, which prevented him from sleeping; he was therefore turned on his back, with the knee bent, and supported by pillows, as in fracture of the thigh. He had occasional throbbing, some thirst, pulse 90, skin cool. The leg and thigh quite as warm as the other, the toes nearly so. To take lemonade for his common drink.

One P. M. He had had an hour's sleep; cough somewhat troublesome; pulse 100; tongue furred in the middle; a little soreness in the belly. A gentle laxative was given.

At nine P. M. the limb was hotter than the healthy one; pulse 104, and fuller. He has had considerable pain in the head, which continued till seven o'clock, when he had an hour's refreshing sleep, and awoke better. The pain in his back continues troublesome. He has coughed little, and expectorates freely. No pain nor tension in the abdomen; tongue

moist, though furred; urine hot, but not high coloured; no stool.

℞. Sulph. Magnes. ʒiij.
Vin. Antim. gt. x.
Tinct. Sennæ ʒij.
Aq. puræ ℥j. M. ft. haust.

To be taken immediately, and a saline draught every four hours afterwards.

Morning visit, (second day)---The patient passed the night with only an hour's sleep; he complains much of his back, and has a slight headache; face flushed; skin hot and dry; pulse 116, rather hard; no tension in the abdomen; cough troublesome in the night; water high coloured and scanty; no stool. To six drams of infusion of senna, and a dram of the sulphate of magnesia, half an ounce of the liquor of acetite of ammonia, and ten drops of antimonial wine were added. To be taken every three hours, until the bowels are opened.

Noon visit—He had a motion soon after I left him in the morning, and several hours comfortable sleep in the forenoon. Pulse 102, soft; skin cool; less thirst; back easier; cough still continues. The whole limb is comfort-

ably warm; he has perfect sensation and power of motion in the toes; belly quite easy. To continue his medicines till he has another stool.

He had some return of fever towards evening, but as it subsided he had two hours sleep, and was much refreshed. Pulse 108; head easy; tongue moist and clean; skin cooler; urine hot and high coloured. He has had another stool, and has taken plentifully of pottage, butter-milk, and tea. Twenty drops of laudanum were added to a dose of his purgative medicine, to be taken at bed time.

Friday, August 1st. (the third day after the operation)---The dressings were removed for the first time. The inferior half of the wound is a mere line, the superior half nearly so. There is a slight blush upon the edges, but no pain nor tenderness; discharge moderate and healthy; tongue clean and moist; limb warm and sensible; appetite good; had a stool this morning.

Saturday—He has slept well the two last

nights, and has taken broth, pottage and milk; pulse 84; tongue clean; no thirst; bowels regular; limb comfortable. The wound is somewhat separated above the upper ligature; discharge copious, but quite puriform. The opiate to be repeated.

Sunday, (the fifth day)—The wound continues to look well; discharge copious; the ligatures from the small vessels, which were divided in the operation, have come away; the stitches beginning to ulcerate were removed also; the limb is warm and easy.

Monday, (sixth day)—Much as yesterday, except that his cough was troublesome in the night. He has also been much fluttered by a sudden noise at the door, but is now calm; the wound looks well, though a slough lines the opening around the upper ligature; discharge somewhat increased, but of a proper quality; pulse 82; appetite good. To take animal food once a day, and a pint of porter in the twenty four hours.

Tuesday—A week has elapsed since the operation; he continues to go on well; his

general health is good; bowels regular; pus healthy; the lower half of the wound continues united by adhesion, except where the stitches were inserted. The upper half of the wound is not more than a quarter of an inch in breadth; granulations healthy. The slough surrounding the upper ligature is in part removed, and little pain is complained of, though considerable pressure be applied to the parietes of the abdomen.

Wednesday—The patient has been taking, night and morning, during the three last days, pills containing half a grain of opium, digitalis and calomel, and three grains of rhubarb; his cough is now better; he sleeps well, and had a stool this morning; pulse 86; appetite good; discharge yet considerable, but healthy.

Friday—The slough lining the aperture, which I have before mentioned, is come away; discharge yet copious; has a stool daily; no pain; limb comfortable; pulse 84 directly after dinner.

Sunday—Continues to improve---discharge not so copious.

Monday—Much as yesterday; discharge greatly abated; granulations now closely surround the upper ligature; the lower ligature has created little irritation; the wound is united around it; the pulse during the last three days has ranged from 74 to 80; tongue clean; bowels regular; limb easy.

Tuesday, (the 14th. day)---The skin over the aneurismal tumour can be drawn up nearly two inches, though before the operation it was quite tense; the contents of the aneurismal sac are fluid; the wound heals.

Thursday—The ligatures came away yesterday; the patient is allowed to sit up in bed, and to move the limb occasionally; his appetite continues good, and his bowels regular.

It will not be necessary to transcribe further the daily progress which the patient made towards recovery. At the end of three weeks the wound was little larger than a pea, the discharge was trifling. He was now allowed to get out of bed, and walk about the room. Though very weak, there was no perceptible difference in the strength or feeling of the

limbs. The numbness in the thigh, which had become troublesome before the operation, still continued. The tumour decreased rapidly, particularly towards the spine of the ilium. At the end of a month, the swelling had decreased at least one third; the wound was perfectly healed, and the patient increased in strength daily; he was now able to take considerable exercise, having walked nearly two miles in one day; the limbs were of an equal strength and thickness, and the numbness in the thigh quite removed.

I much regretted that in this operation I could not adopt Mr. Abernethy's improved method of tying the artery, to its full extent, since I could not separate the vessel from its connections sufficiently to admit of its division, without a degree of violence, which would have more than counterbalanced the danger of a short space of the tube, between the ligatures, being left separated from the surrounding parts; yet I am decidedly of opinion, that the chance of success from the operation was diminished by this occurrence. I would

however in every case apply a double ligature upon the vessel, since the same process which prevents the accession of hæmorrhage by the application of the upper ligature, would appear likely to hinder such an occurrence from the lower orifice also, and by producing adhesion of the coats of the vessel at two distinct points, render the ulcerative process less extensive, and confine it in all likelihood entirely to the space between them.

The tumour, at the period of the operation, extended from the anterior superior spine of the ilium, to a short distance from the angle of the pubis, and its apex rose so high, that it rendered Poupart's ligament exceedingly obscure in this space. This rapid extension made me apprehensive that its basis would spread so far under the crural arch, that a sound part of the artery could not be reached without considerable difficulty. This circumstance appears the more likely to take place, when we consider the powerful resistance which the fascia of the thigh presents to the increase of the tumour beneath it, and the comparative facility

for its ascent upwards, where it chiefly meets with resistance from the fascia iliaca of Mr. Cooper. That the proper sheath of the femoral vessels in its natural state, can contribute little to prevent such an event, will be easily conceived; particularly if we agree with the same eminent Surgeon, that all crural herniæ are protruded, in the first place, into this sheath, and that the openings for the passage of the absorbent vessels are large enough to allow their exit from it.

The event, which I feared, took place in Mr. Abernethy's second case, and that it does not more frequently occur, is owing to that law which Mr. Hunter first noticed, by which extraneous bodies approach towards the surface, rather than extend in a lateral direction; and by the pressure of the projected fluid producing condensation of the surrounding parts.

The probability of the aneurismal sac participating in the irritation, which the presence of the ligatures may produce, will be in proportion to their contiguity. Mr. Abernethy, therefore, very judiciously directs, that the

artery be tied as high as possible, though the difficulty of reaching it is thereby increased; and though in such cases, the Surgeon must lay aside the knife, as soon as he is able to reach the arterial sheath, and conduct the future steps of the operation by the finger, or by a blunt instrument introduced under the artery.

As the ulceration of the aneurismal sac would in any case produce so much constitutional irritation, as would render this operation doubly hazardous, and from the large size which the tumour had attained in Ramwell's case, almost certainly fatal; it cannot, I think, be too strongly recommended, to proceed to the operation at as early a period as possible; that is, as soon as the flow of blood through its natural channel is sufficiently obstructed, and the consequent increase of the collateral branches, appears adequate to support the vitality of the limb.

It is pleasing to reflect, because it shews the favourable progress of this branch of Surgery, that though Cheselden trusted so little to the power of carrying on the circulation

by the anastomosing branches, that he had difficulty in believing the event when it had taken place in the arm; the judicious boldness of Mr. Abernethy has clearly demonstrated, that the operation may be performed with safety in any situation, where anatomy enables us to reach a healthy portion of the artery.

That the supply of blood was adequate to the proper nutriment of the limb, was in this case evident, from the day of the operation, although the artery passed too near the surface of the tumour, and its pulsation downwards was too easily traced, to admit a supposition that the circulation through it was much impeded. The absence of extensive œdema confirms this opinion, and is easily accounted for, by the sac being almost entirely external to the femoral vein.

There was much less symptomatic fever than could have been expected; especially, as the temperature of the air in the four or five first days after the operation, amounted to 70° in the shade.

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CASE

OF

GUNSHOT WOUND.

ON the morning of the nineteenth of April 1812, I was desired to visit Richard Taylor at Middleton, who had received a wound the preceding evening from a musket, in a riotous attempt to enter a weaving mill, belonging to Messrs. Burton of that place. I found him upon the floor of a room in which a man lay dead, and into which there was a continual influx of people, whom curiosity or interest led to the scene. The ball which was shot from the windows, entered the groin, about the third of an inch from Poupart's ligament, near the middle of the base of the triangular cavity, formed by the adductor and sartorius muscles; and exactly over the femoral artery, where it passes out of the pelvis. A considerable hæmorrhage took place immediately after the accident. The patient had suffered much pain, had slept little, was

thirsty, and on being raised this morning, there was a return of the hæmorrhage, to he amount, it was supposed, of eight ounces. The limb was moderately warm, the pain had now subsided. The discoloration and tension extended to the hip. The abdomen was soft and easy; his pulse weak and frequent; tongue dry; skin warm.

I withdrew a tent which had been introduced into the wound, but no blood followed. My little finger passed readily into the opening. I found that the ball had entered the sheath in which the femoral artery and vein lie imbedded. The coats of the artery were laid bare on its interior surface, where it is contiguous to the femoral vein, and after passing in contact with, and behind the vessel, the ball appeared to descend towards the knee.

When I withdrew my finger, about two ounces of venous blood trickled from the wound. It ceased, and after waiting sometime for its re-appearance, I contented myself with ordering rest, diluents, and a purgative mixture. A cold lotion was constantly applied upon the

part; and Mr. Scholfield, the Surgeon of the place, was kind enough to superintend my patient, to watch the return of the hæmorrhage, and, if necessary, to command it by pressure above or below the wound, until I could be sent for. Compresses were of course made ready, and the patient was watched during the night.

The following morning I found him with little pain. He had passed a comfortable night. With straining yesterday to procure a motion, a few ounces of dark coloured blood trickled down the thigh into the bed pan. He had a second stool in the evening, without the bleeding. His water was high coloured; his pulse strong and quick; skin hot; tongue dry, and covered with a white fur; thirst troublesome. To take toast and water, cold tea, gruel, &c.

As the patient was some miles from home, and as his friends were anxious to remove him; I applied a spica bandage around the part, wet with a solution of acetite of lead. He was conveyed in a sling, with an attendant at his side, who was directed to apply pressure,

if necessary. The journey did not fatigue him. His pulse in the evening had fallen; his thirst and heat were abated.

On the third day he remained easy; but he was confined in a small room, in which were two other beds, with a brother in the last stage of consumption. His family appeared to have neither power nor inclination to keep from him crowds of idle people, who came to visit him, and who agitated and disturbed him with reports of his apprehension; and as it was probable that the hæmorrhage would return when the eschars began to separate, I determined to have him removed to my own premises, where my assistants could watch him, and where I could better attend to him than at a distance.

On the fourth day he was much in the same state. He had little pain. His skin and tongue were moist; his pulse soft. There was very little discharge, for the aperture was lined with a slough; the abdomen was easy, and he could bear considerable pressure in the neighbourhood of the wound. On the evening of this day he was removed, but his journey

fatigued him. He was starved, and his extremities continued cold during the early part of the night. To have the thigh fomented twice a day, and imbedded in a large poultice, and to take porter. A dose of calomel was given this morning.

On the sixth day he was seized with convulsive twitchings of the arms, his pulse intermitted, his countenance was depressed and anxious, his breathing laborious, and the extremities cold. These symptoms were removed by thirty drops of laudanum, and the same quantity of æther, mixed with warm wine. Bottles of hot water were applied to his feet, and he passed the night comfortably.

Seventh day—His bowels during the last three days have been obstinately costive, a clyster was therefore injected, which procured a large, dark coloured, fœtid motion.

Eighth day---His appetite is again good. The wound discharges plentifully; pulse regular; the swelling around the hip nearly subsided. Takes wine, and porter.

Tenth day---A portion of the slough separated from within the wound, and a few drops of arterial blood followed. The patient was able to move the thigh, but the greatest caution was enjoined. He continued to eat and sleep well; stools were procured by clysters.

By the end of the third week the opening was nearly closed; but a probe could yet be introduced several inches into the sub stance of the thigh, through the centre of the granulating surface. The artery communicated its pulsation so strongly to the instrument, when thus introduced, as to be visible at some distance from the bed. There was yet a considerable discharge, but with little pain. Though the ball passed through eight folds of clothing, there has been very little irritation excited, and the patient can move his thigh in every direction, with great freedom.

At the expiration of a month, he walked home; the wound had not yet healed, but the discharge was trifling, and the orifice soon afterwards closed. In July it re-opened, and a few threads of clothing were discharged,

when it again healed. He has worked at his trade as a weaver, and is now employed in the hay. The centre of the cicatrix appears exactly over the artery. *

As the ball passed in contiguity with, and laid bare the arterial coats; it is almost impossible that they could avoid being included in the eschar when it separated. The case I have related would appear therefore an additional proof, that an artery may carry on the circulation, though its external coats are destroyed; and that aneurism is not likely to take place, unless there is a previous and positive disease in the vessel. †

I have already mentioned, that the propelled body passed between the femoral artery and vein, where they lie in contact with each other. It is not easy to conceive, how the latter vessel could escape injury; and as the blood was venous, as it flowed in a copious

* Since this case was drawn out, the wound has twice re-opened, and a quantity of clothing has been discharged each time. The ball remains, but produces no uneasiness.

† Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge. vol. i. p. 144.

stream, and as its quantity was also considerable, it appears at least probable, that the vein *was* the source from whence it originated. But with this view of the case, it may be asked, why I did not tie the wounded vessel? Since, it might be argued, the loss of blood arising from this neglect, produced greater debility than the incision, and the consequent increased suppuration, would have done.

It is to be regretted that we have no data, by which we can ascertain, not only the comparative powers the veins and arteries possess, of carrying on the circulation by collateral branches, but of recovering by natural means from injuries inflicted on them. *

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* Dr. Jones' very ingenious and instructive work on hæmorrhage does not, if my memory prove correct, extend thus far—several facts might, I think, be adduced, which render it probable that a wounded vein would sooner unite by adhesion; and certainly it might be more easily rendered impervious, than a wounded artery of the same calibre. But as all hope of adhesion, in the generality of gun-shot wounds must be futile; is it not likely, when re-action in the neighbourhood of the deadened parts took place, that lymph was effused; into which vessels would shoot, and render the vein impervious: and that a further hæmorrhage was in the mean time prevented, by the coagulation of the extravasated blood?

This knowledge, would have enabled me to limit with more precision, the line of practice to be adopted. As it was, I determined to be regulated by the patient's strength, and if the bleeding had returned after the evening on which his pulse fell, I should not have hesitated to pursue the proper means of securing the wounded vessel. But the recurrence of the hæmorrhage, from the sloughing of the artery, appeared so inevitable, that it was for some time matter of serious doubt, whether I ought not to cut down upon, and secure it, above Poupart's ligament; and thereby prevent what appeared almost a certain evil, rather than remedy it when it took place. Whether I ought not in fact, to choose my own time, rather than be roused perhaps in the night, and incur the hazard of a further reduction in the patient's strength, by the loss of more blood, or have his life destroyed by the temporary sleep of the attendants? Even now I am not certain that it would not have been the best practice. At any rate I should, I hope, have stood excused by my professional

brethren, had I adopted it, especially as my own experience led me to expect little injury to the affected limb. I forbore however, because I was unwilling to destroy even a small chance of the artery remaining entire; and because I would not bring upon my patient, as it were, two diseases, when either was sufficient to contend with. For though the internal iliac might be adequate to the support of the limb, yet the eschars would have been much longer in falling off, in consequence of the decreased power in the part. The confinement of my patient would, therefore, have been protracted, his general health would have suffered, and a a train of evils might be expected, which would terminate, perhaps, in death.

Besides, I was acquainted with no instance, where both the femoral artery and vein had been rendered suddenly impervious in the human subject, above the junction of the saphena vein. It would not therefore be matter of surprise, if I had been willing to avoid the additional anxiety of an operation, to which there was no

precedent, and which might possibly be unnecessary; but it was not a willingness to avoid the operation which actuated me, for I should not have hesitated to perform it, had the hæmorrhage continued from the vein, or had the shew of blood which followed the separation of the eschar, been at all increased, and increased in such a way, as to prove that it originated from either of the vessels in question. In short, I was anxious to operate, but equally anxious that the operation should be proved to be necessary.

Mr. John Bell says "it is because Gunshot wounds are bruised, that they gangrene; it is because they do not bleed at first, that their after bleeding is so dangerous; it is because they are deep, penetrating and bruised, that they appear malignant, and do not easily heal." * "Their peculiar nature draws after it a peculiar practice;" † and in a former page he directs us to "scarify the vessels that they may bleed;" to "enlarge the wound, that when

* Discourses on the Nature and Cure of Wounds, p. 175.
† Ibid. p. 175.

it inflames it may have room to swell," and "your incisions," he adds, "while they change in some degree, the nature of the wound, enable you to see the bottom, to take up the bleeding arteries, and to extract the ball or fractured bones."

I shall not, I hope, be thought wanting in respect to this very pleasing writer, if I venture to differ in opinion on the utility of this practice. I can, for instance, see little use in "scarifying the pent up vessels that they may bleed," because the only possible good such practice can produce, is the prevention of inflammation; which Mr. John Bell admits, seldom runs to any dangerous height. *

It is in fact very much less than we could expect; for the parts are deadened, and eschars are formed, as eschars are formed by the application of a caustic. In either case, comparatively little inflammation follows. It must also be remembered, that the separation of these eschars is a living process, and is effected by the action

* Discourses on the Nature and Cure of Wounds, p. 191.

of the absorbent vessels. Scarifications, therefore, will not "quicken the falling off of the bruised parts."

It is true that "scarifying deeply enables you to reach the bleeding arteries"; but even this advantage, may as it appears to me, be purchased at too high a price, and the practice should not be admitted without considerable exceptions.

The artery may be wounded where it is so deeply seated, that it would require a very large incision to reach it; whereas by tying it above the wounded part, where it is superficial, the hæmorrhage is effectually suppressed, and much time and strength will be saved by the comparatively small, suppurating sore. *

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* A case which it appears useful to mention is related by Mr. Gooch, in which one of the arteries was opened about the middle of the leg. The bleeding was stopped from time to time by various methods, but at last it was thought advisable to amputate the limb. Mr. G. proposed to "cut out two or three inches of the fibula, and so secure the artery."

This practice of Mr. Gooch's has been sanctioned by one of the best provincial Surgeons in this country, and the case was attended with complete success. *(See Mr. Heys' very important practical observations.)* I am anxious to pay every respect to the opinions of this excellent Surgeon; but I cannot help remarking that I should prefer tying

Again, if the bleeding have been profuse, the blood, driven into the interstices of the muscles, will create much confusion, especially if it be secondary, and if there have been previous inflammation. But this is not all, for the whole of this open wound must

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the artery in the ham, or on the inside of the sartorius muscle, in a similar case, because experience justifies us in asserting, that the collateral branches would be fully adequate to the support of the limb. The irritation following this operation, being less serious than from a wound large enough to enable us to remove several inches of the fibula, the injury of the limb would be less considerable, the suppuration less in quantity, and its duration shorter, than after the removal of the bone: and lastly, no deposition of bony matter would take place, until the outward wound had healed, when the parts would have become so quiescent, and the increased action, which generally accompanies, and always favours, the formation of new bone, so nearly subsided, as to render its reunion uncertain. It ought perhaps to be observed, that Gooch had so little expectation of tying large arteries with impunity, that he says "when the brachial or femoral artery is wounded, though the patient should not perish by hæmorrhage, the limb must soon die for want of nourishment." "In such case the progress towards putrefaction will be very swift. It therefore very generally requires amputation." *(Gooch's Surgery, vol. 1. p. 77.)* The justification of, and excuse for Mr. G's practice, is contained in this sentence; it is the want of knowledge in the power of carrying on the circulation by collateral branches which led to the proposition; but with our present confidence in this power, no sufficient excuse can, I presume, be urged, for continuing to propose a dangerous operation, where one comparatively trifling will answer equally well. Mr. Hey will, I am sure, excuse the freedom of these remarks.

ulcerate, and the artery, with the ligature around it, would therefore lie imbedded in matter; the ulceration of the surrounding parts would extend to it, and reiterated hæmorrhage be likely to ensue; attended each time with more difficulty, more danger, and more confusion. Besides, if the maxim be true, that "bruised parts inflame," and if the danger of hæmorrhage chiefly arise from this inflammation, it would appear to follow, cæteris paribus, that to tie the artery where it is already injured, must be less safe than the practice I have mentioned.

Mr. John Bell says, "none but those Surgeons who have seen few gun-shot wounds, talk of reducing this piece of surgery, to the common principles which regulate our practice in other wounds." * It may with at least equal truth be answered, no one will accuse Mr. J. Bell of this error, when he directs us to scarify the wound "merely because it is a gun-shot wound." And when he asserts that "every man is too

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* Discourses, p. 185.

apt to represent his own conceits as the true principles of surgery,"* there appears more justice in the remark, than propriety in its application to John Hunter.

The doctrine of scarifying "gun-shot wounds with fractured bones," should be confined within narrow limits. When we recollect that the Hunterian museum contains a preparation where the bone lived, though so extensively injured, that the medullary canal was turned outwards; we shall see that these bodies possess powers of life beyond our expectation. They sometimes continue to live when the soft parts slough away. It is only then, where the injury is so great as to render re-union impossible, that such advice ought to be given; for if there be only a distant hope that the detached portions of bone may live, it would appear improper to remove them; since the formation of new bone, is, in any case, a tedious process, and is rendered much more uncertain, by an outward wound. This fact should render us

* Discourses, p. 186.

careful to save every portion of bone, and to recollect that "though the splinters are loose and seem to be lost, yet they are still attached by their membranes, and may live and be taken into the knot of callus which restores the bone." *

To dilate gun-shot wounds for "extracting the ball" is still more objectionable; since, in many cases, we must commit greater injury than is already inflicted.

CASES

OF

CONGENITAL UMBILICAL HERNIA.

September 27, 1810. I attended a poor woman, who was far advanced in pregnancy, and in the last stage of consumption. On the evening of this day she had slight pains, which denoted the approach of labour.

On the 28th. she had risen to make water; a pain seized her, and the child was born;

* Discourses, p. 197.

the funis was torn, and it fell upon the floor.

I was sent for, and on uncovering the infant, was surprised to find a large tumour, contained within the funis. It was firm, inelastic and perfectly incompressible. It hung pendulous upon the thighs, and reached to the knee; appeared circumscribed and separated from the cavity of the abdomen. The cellular substance which constitutes the greatest part of the chord, and in which the tumour was contained, was condensed into distinct layers, between each of which a quantity of serum was effused, giving it the appearance of a large blister. The common parietes of the abdomen were so disproportionate to the contained viscera, that the dilated funis spread out, so as to form a considerable part of the covering.

On cautiously dissecting through the layers of cellular membrane which formed the covering of the tumour, I found the liver of the child, adhering by firm ligamentous bands, to the process of the peritoneum which formed the inner surface of the sac. The adhesions were cautiously divided, the liver was returned

into the general cavity, and a ligature tied round what may be called the hernial sac, as nearly as possible to the abdomen.

The abdomen was now very tense, and the struggles of the child so violent, that the ligature gave way, and the liver, with a portion of the small intestines, became again protruded. On their being reduced a second time, the child died.

CASE.

In the following year, I was called to a woman who was just delivered of a fine child. The midwife on examining the funis, was surprised to find that it had no pulsation, and appeared much longer than usual. She elevated the clothes to examine it more particularly, and found the intestines of the child, lying upon the bed. The opening through which they had escaped, and which was produced by the pain which expelled the child, was large enough to admit a common sized apple. The dilated funis formed at least one third of the parietes of the abdomen, and the whole of the small intestines and the stomach

lay out of the wound. The intestines and omentum were of a dark coffee colour, and the slightest touch produced a rupture of the vessels which ramified upon them. After dividing the funis, beyond the dilated part, I had the child laid upon its back, and having, with great care and caution, succeeded in replacing the bowels, I passed a needle through the funis, with the intention of bringing the sides of the lacerated opening into contact, but the stitches were torn out by the first struggle of the child, and before I could again replace the bowels, it expired.

Cases of this kind of malformation, or, if they may be so called, of umbilical hernia in the fœtus, occasionally occur. Ruysch illustrates one of them by a rude engraving, and relates another, where the peristaltic motion of the intestines could be distinguished through the peritoneum, for the greater part of the skin and muscles of the abdomen were wanting. Other instances are related by Mr. Hey; * and Dr. Hamilton's practice

* Hey's Surgical Observations.

furnishes him with an opportunity of seeing two cases annually. *

Where the protruded portion is small, and the integuments of the abdomen are not materially deficient, the hernia may be returned, and the sides of the opening will coalesce. Desault † recommends us to obliterate the dilated chord by a ligature; this practice appears much simpler than the twisted suture, recommended by Dr. Hamilton, and should, I think, be generally preferred, where compression does not appear adequate to retain the bowel in the abdominal cavity. But when the hernia is large, the chance of success appears so small that it will scarcely justify the Surgeon, in inflicting pain on the infant. Though death appeared inevitable in both the cases, which I have related, it was evidently hastened in the former, and scarcely protracted in the latter, by the means which were adopted to prevent it.

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* Cooper on Hernia, Part II.
† Parisian Journal.

CASE.

June 23rd. 1812,—I was requested to visit T. A. of R* * * who was suffering from acute pain at the posterior part of the head, extending from the transverse ridge of the occipital bone, to the first or second vertebræ of the neck. The man had been occasionally troubled with similar attacks during the last seven years, but in the intervals had enjoyed good health. Since the last attack, he has found the neck somewhat weaker than at any former period, and illustrated his meaning, by stating that when he attempted to carry a load of flour, the neck appeared to give way under it, and tremble; he compared the sensation to the motion of chips upon each other. The same feelings were not produced by carrying burdens upon the head. I ordered eight leeches to the neck, and a purging mixture; and directed the head to be kept cool, and the feet to be immersed in hot water.

June 24th.—Not at all better, though his bowels have been well opened, and the leeches bled freely: The patient finds relief only by

moving the atlas upon the dentata, his head is therefore in a constant rotatory motion; and his sufferings are so great, that though apparently possessed of a strong mind, he gives utterance to his feelings in a constant groan. His pulse is soft, his pupils dilated, no tightness within the cranium, nor is light at all offensive. He had six more leeches applied, which bled freely, and afterwards a large blister to the nape of the neck. The head was shaved, and cold stupes were constantly applied to the back of the cranium. To continue his mixture.

The following day (25th.) Pain very violent. His pulse is full, but not strong nor quick. Tongue furred; little thirst; no shiverings nor sickness. I took ten ounces of blood from the arm; he was immediately relieved, but the pain returned in half an hour, and was if any thing more acute. In the evening I saw him again; his pulse had fallen; his pain was equally violent, but not so regular; bowels open; no soreness nor swelling in the head or neck, on the contrary he frequently grasps the muscles, and experiences some relief from it;

the rotatory motion is continued. He seems scarcely able to lift his head from the pillow; on rising, it shakes as if palsied.

Appl. Empl. Lyttæ occipit.
℞. Ext. Hyosciam. gr. v.
Calomel. gr. iij. M. ft. Pil. ij. Capt. hora somni.
℞. Aq. Ammon. acet. ℥ss.
Tinct. Digitalis gtt. viij.
Sp. Æther. Nitric. gtt. xxx.
Aq. distillat. ℥j. M. Capt. 4ta. quaque hora.

26th.—Had occasional slumbers in the night, but was awoke by the pain, which at intervals was as violent as yesterday. He had a blister applied on each side the neck.

27th.—Little alteration. The pills have again procured some sleep, and the intervals of ease are more distinct.

℞. Tinct. Gum. Guaiac. gtt. xxx.
Ov. Vitell. q. s. Misc. et add.
Sp. Æther. Nitric. gtt. xxx.
Tinct. Humuli. gtt. xxx.
Aq. puræ ℥j. M. ft. Haust. ter die sumendus.

28th.—The pain returns about every half hour, and is very acute. The patient in other respects has experienced no change. His bowels were not very open, and a purgative bolus was exhibited.

A mixture of Fowler's mineral solution was intended to be given in the morning, but on the afternoon of this day, a violent attack of pain seized him; he rose up suddenly; his face became dark coloured; his head and neck swollen; and in a few moments he expired.

I could not prevail on his friends to have the body examined; it is not, therefore, easy to determine, whether the symptoms I have narrated, were the effect of inflammation in the theca which lines the vertebral column; of disease in the ligament which binds the tooth-like process of the second vertebra to the first; or whether there existed disease in the bone. I am inclined to the first of these opinions.

FINIS.

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